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[EDITED BY THE LATE JOHN MOORE NELIGAN, M.D., M.R.I.A.]

CLINICAL LECTURES
ON THE
PRACTICE OF MEDICINE :

BY THE LATE
ROBERT JAMES GRAVES, M.D., F.R.S.

PROFESSOR OF THE INSTITUTES OF MEDICINE IN THE SCHOOL OF PHYSIC IN IRELAND.

TO WHICH IS PREFIXED A CRITICISM BY
PROFESSOR A. TROUSSEAU OF PARIS.

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TO THE
RIGHT HONORABLE WILLIAM, EARL OF ROSSE, K.P.,
President of the Royal Society,
THIS, THE SECOND EDITION OF A TREATISE
ON
CLINICAL MEDICINE,
IS RESPECTFULLY DEDICATED BY HIS FRIEND,
THE AUTHOR.

ADVERTISEMENT.

41, Grafton-street,
Dublin, January, 1864.

THE Clinical Lectures of the late Dr. Graves have been for some time out of print ; and the constant demand for them has been such as to induce the publishers to issue this reprint of the second edition, edited, in Dr. Graves' lifetime, by the late Dr. Neligan.

They have much pleasure in annexing, from the *Medical Times and Gazette*, the following translation of the Introduction to the French edition of this work, from the pen of Professor Trousseau of Paris :—

“ TO THE TRANSLATOR.

“ Sir and honored Confrère,

“ For many years I have spoken of Graves in my clinical lectures ; I recommend the perusal of his work ; I entreat those of my pupils who understand English to consider it as their breviary ; I say and repeat that, of all the practical works published in our time, I am acquainted with none more useful, more intellectual ; and I have always regretted that the Clinical Lectures of the great Dublin practitioner had not been translated into our language.

“ As Clinical Professor in the Faculty of Medicine of Paris, I have constantly read and re-read the work of Graves ; I have become inspired with it in my teaching ; I have endeavoured to imitate it in the book I have myself published on the Clinique of the Hotel Dieu ; and even now, although I know almost by heart all that the Dublin

professor has written, I cannot refrain from perusing a book which never leaves my study.

“Graves is an erudite physician; while so rich in himself, he borrows perpetually from the works of his contemporaries, and at every page brings under tribute the labours of German and French physicians. Although a clinical observer, he loves the accessory sciences; we see him frequently have recourse to physiology, in the domain of which he loves to wander; to chemistry, with which he is acquainted, which he estimates at its true value, and to which he accords a legitimate place. He often reminds me of the greatest clinical teacher of our day, Pierre Bretonneau, an able physiologist, a distinguished chemist, a learned botanist, an eminent naturalist, who incessantly in his lectures and conversation at the Hospital of Tours, found in all those accessory sciences, with which he was so conversant, those useful ideas and ingenious views which he subsequently applied with unusual felicity to the study of our art.

“Shall I now say what are, in Graves's work, the most remarkable and important lectures. To be just, I ought to indicate all in succession: there is not one of them, in fact, which does not abound in practical deductions; there is not one which does not bear the impress of the admirable and powerful faculty of observation which distinguishes the physician of the Meath Hospital. The lectures on scarlatina, paralysis, pulmonary affections, cough, headache, have acquired an European reputation, and the interest with which they inspire every attentive reader is assuredly their best panegyric.

“There are, however, two points to which it is important to call particular attention. Graves has devoted a great many lectures to typhus fever, which so cruelly decimates Ireland. It might be supposed, at first sight, that the study of this portion of his work is not of so much importance to us, French physicians, who, fortunately, have not to contend with the formidable malady in question. This is a mistake. All the precepts of the author upon the treatment of this pyrexia are so applicable to the severe forms of our typhoid fever, that we shall with the greatest advantage consult this remarkable work. Moreover, the maxims relating to regimen have become the guide of the practitioners of all countries: it is they which now direct us in

the treatment of putrid fever. And, nevertheless, when he inculcated the necessity of giving nourishment in long-continued pyrexias, the Dublin physician, single-handed, assailed an opinion which appeared to be justified by the practice of all ages; for low diet was then regarded as an indispensable condition in the treatment of fevers. Had he rendered no other service than that of completely reversing medical practice upon this point, Graves would by that act alone have acquired an indefeasible claim to our gratitude.

“On the other hand, I cannot sufficiently recommend the perusal of the lectures which treat of paralysis; they contain a complete doctrine, and this doctrine has decisively triumphed. The sympathetic paralysees of Whytt and Prochaska have now their place assigned in science, under the much more physiological name of reflex paralysees, and the Dublin professor is the first who has studied with exactness their etiological conditions, as he is the first who has made known their pathogenic process. Anticipating by many years the admirable works of Marshall Hall, he has comprehended, he has seen that anomalous peripheric impressions may react upon any section of the medulla, and determine at a distance disturbance of movement or of sensibility; he has, in a word, created the class of peripheric or reflex paralysees, and he has clearly established the relations existing between these paralysees and acute diseases.

“Unhappily, these remarkable lectures have remained a sealed letter for the majority of French practitioners; but it is time to render to the physician of the Meath Hospital the justice which is due to him; it ought to be known that Graves is the creator of this new doctrine, which has profoundly modified, within a few years, the pathology of the nervous system; it is right, in fine, to refer to its true author the suggestive theory of the paralysees and the convulsions of peripheric origin.

“You have then, sir, done a very useful work in publishing Graves' Lectures. You have rendered a great service, if not to beginners—who will perhaps not find in them the elementary ideas which are necessary to them—at least to physicians, who must understand the reasons of instinct and intelligence by which they ought to allow themselves to be guided in the difficult paths of practice; who are

called upon to assist in the doubts, embarrassments, and perplexities which trouble the conscientious man when he is engaged in those obscure cases which so frequently present themselves in the wards of an hospital.

"Graves is often empirical. What true clinical observer can avoid being so? But he is so only in spite of himself. He seeks, he points out the reasons which determine him; he discusses them, and he conducts his pupil, step by step, from the theory, occasionally too ingenious, to the application, which is always useful though often unexplained.

"Graves is a therapist full of resources. For the majority of French physicians his medications present something unusual, because the agents he employs are rather less used in France; but we learn in his lectures the medicine of our neighbours at the other side of the channel—a medicine strange to us, as ours is to them. We learn in them the methods most relied upon in the United Kingdom, and the remedies to which our English colleagues give the preference. I freely confess that I had some difficulty in accepting, notwithstanding the imposing authority of Graves, what he states of the influence of certain remedies, such as mercurials, essence of turpentine, spirituous preparations, nitrate of silver, &c.; but the Dublin professor speaks with so much conviction that I ventured to follow his precepts, and I must say that my early trials very soon encouraged me to adopt unreservedly what at first I accepted only with misgiving. There is not a day that I do not in my practice employ some of the modes of treatment which Graves excels in describing with the minuteness of the true practitioner, and not a day that I do not, from the bottom of my heart, thank the Dublin physician for the information he has given me.

"Graves is, in my acceptance of the term, a perfect clinical teacher. An attentive observer, a profound philosopher, an ingenious artist, an able therapist; he commends to our admiration the art whose domain he enlarges, and the practice of which he renders more useful and more fertile. We shall, therefore, all be much indebted to you my dear confrère, for having rendered familiar to us an author unfortunately too little known among us.

"A. TROUSSEAU."

THE EDITOR'S PREFACE.

HAVING, at the request of Dr. Graves, undertaken to edit the present edition of his work on Clinical Medicine, my chief aim has been to improve its truly practical character, and thus render it if possible more useful to the profession. With this view I have altered and re-arranged the Contents, classifying the various diseases and subjects treated of, and throwing the entire into the more suitable form of lectures. This, so far as related to the Second Part—which in the first edition consisted of miscellaneous essays—I found but little difficulty in doing ; for the author having been always in the habit of dictating to a shorthand writer, his style naturally assumed a colloquial character, and therefore required but very little alteration to reduce it to that of a Lecture.

With this same object in view, whatever alterations or additions I have myself made, I have incorporated with the text ; knowing practically the great inconvenience and distraction of mind to the reader, which editorial notes or matter inserted between brackets produce. Moreover, I have been differently circumstanced from most other editors, having had all through the zealous co-operation of the author and his approval of the alterations and additions made.

The reader will perceive that I have introduced into this Edition several of the author's essays which were omitted from the first : of these I wish to call especial attention to his observations on two subjects—the Pulse and Cholera. The greater part of the former, which now constitutes the fourth lecture, was originally published in the Dublin

Hospital Reports nearly five and twenty years since, and contains an account of the first *accurate* experiments which were made as to the effects of posture on the frequency of the pulse ;—an inquiry which has been since then carefully investigated by Knox, Guy, and others, with the effect of stamping with correctness the original observations of Dr. Graves, and proving their practical value.

The subject of the Cholera is just at present an all-important one, when this pestilence is ravaging a great portion of the globe, and those countries which have been once and but once before afflicted with it are again threatened with a visitation. Shortly after the cessation of the previous epidemic, Dr. Graves read an essay before the College of Physicians on its origin and progress, chiefly with the view of proving its *contagious* character ; this essay, which was published at the time in the *Dublin Journal of Medical Science*, is now remodelled, and a short history of the present epidemic, as far as it had advanced at the time those lectures were going through the press, added.

The lectures on Fever, which constitute so large and so valuable a portion of the first volume* will be found to be much altered as regards arrangement ; and the causes and mode of diffusion of the late epidemic with which this country was visited have been noticed.

Although many years have elapsed since several of the author's views on the physiology, pathology, and treatment of diseases were first published, and the science of medicine has been since extraordinarily advanced by the aid of the chemist and the histologist, but few alterations or omissions have been required to adapt them to the present state of knowledge. Indeed, it is singular how many of his observations, which, when first promulgated, were from their novelty either doubtfully received or altogether rejected, have been corroborated by the investigations of more recent inquirers. Of these I would particularly notice his views "on the Capillary Circulation, and on the Doctrines of Inflammation," confirmed by the most recent microscopical investigations ; "on the Circulation of the Blood within the Cranium," confirmed by Dr. Burrowes' experiments ; "on the Pathology of Paralysis," so remarkably in accordance with the Cerebro-spinal Reflex

* In perusing this and the Author's Preface, the reader is requested to observe that the second edition was in two volumes.—[*Pub. of Reprint.*]

Theory; "on the Pathology of Tubercle;" and "on the Nature of the Acid in the Human Stomach."

In conclusion, I have only to add that these volumes, as now presented to the reader, contain the results of Dr. Graves' additional experience during the five years which have elapsed since the first edition was published.

J. MOORE NELIGAN.

THE AUTHOR'S PREFACE.

THIS Work first appeared in 1843, and its publisher informed me last year, the sale had been so rapid that he expected the whole edition would be soon disposed of. The event more than justified his anticipations, and consequently he requested me to prepare a second edition for the press, a request I felt bound to comply with, particularly as I was conscious that much might be done to render the work more deserving of the approbation which my brethren and colleagues in all parts of the world had so kindly, and to me so unexpectedly, bestowed on it.

On revising the volume as before printed, I detected so many faults and errors, that I at once resolved to remodel the whole, and accordingly I applied myself to the accomplishment of this object, with a sincere desire to render my Clinical Medicine still more useful to the profession. I soon found, however, that my task was a very difficult one. The original work contained so much which a maturer reflection and experience disapproved of, that the sections to be omitted soon swelled to a formidable bulk; while, on the other hand, a closer review of the matters discussed suggested the necessity of inserting many lectures that had been formerly left out.

The occupations of a laborious profession so encroached on my time, that I found my plans could not be executed, without associating myself with some other physician, in whose industry, learning, and ability I reposed confidence. Having been fortunate enough to secure the co-operation of Dr. Neligan, I felt certain that the result would be satis-

factory, and I placed in his hands the numerous cases I had collected from my own practice, and the various extracts I had made from books since the publication of the first edition. To these materials Dr. Neligan made many and important additions, and he has bestowed so much labour on the two volumes now submitted to the profession and public, that I feel confident this edition will be found a great improvement on the former.

ROBERT J. GRAVES.

*Merrion Square,
September, 1848.*

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CLINICAL LECTURES

ON THE

PRACTICE OF MEDICINE.

LECTURE I.

CLINICAL INSTRUCTION.

GENTLEMEN,—Before we commence an examination of the cases at present in the medical wards of this hospital, it is necessary to explain the method of instruction which I mean to adopt. Employed elsewhere in learning the principles that constitute the basis of medical education, you ought to be impressed with a precise notion of the peculiar objects and utility of hospital attendance. You come here to convert theoretical into practical knowledge; to observe the symptoms of diseases previously known to you only through the medium of books or lectures; to learn the art of recognising these symptoms, and of appreciating their relative importance and value; to study their connexion with morbid alterations of internal organs; and, finally, to become acquainted with the best method of relieving your patients, by the application of appropriate remedies.

Such, gentlemen, are the objects you seek in coming here; and in proportion to the number and importance of these objects, are the degree of responsibility attached to your clinical instructors, and of blame to yourselves, should the opportunities which this institution offers for your benefit be neglected.

The other branches of medical education may be cultivated at different times, and according to a certain order of succession,—one period of your studies demanding a particular application to anatomy, another to chemistry, while a third must be especially devoted to *materia medica*. With the observation of disease it is otherwise. From the very commencement, the student ought to witness the progress and effects of sickness, and ought to persevere in the daily observation of disease during the whole period of his studies.

The human mind is so constituted, that in practical knowledge its improvement must be gradual. Some become masters of mathematics, and of other abstract sciences, with such facility, that in one year they outstrip those who

have laboured during many. It is so, likewise, in the theoretical parts of medicine; but the very notion of practical knowledge implies observation of nature; nature requires time for her operations: and he who wishes to observe their development will in vain endeavour to substitute genius or industry for time. Remember, therefore, that however else you may be occupied—whatever studies may claim the remainder of your time, a certain portion of each day should be devoted to attendance at an hospital, where the pupil has the advantage of receiving instruction from some experienced practitioner. A well-arranged, and sufficiently extensive hospital, contains everything that can be desired by the student; but, unfortunately, his improvement is seldom proportioned to the opportunities he enjoys. Whence this deficiency? How does it happen that many attend hospitals day after day, and year after year, without acquiring much practical knowledge? This may be attributed to want of ability or diligence on the part of the student, or to an injudicious or careless method of teaching on the part of the hospital physician. It may be well to examine more in detail the errors to which the student and the teacher are respectively most exposed.

A great number of students seem little, if at all, impressed with the difficulty of becoming good practitioners; and not a few appear to be totally destitute of any prospective anticipation of the heavy, the awful responsibility they must incur when, embarking in practice, the lives of their fellow-creatures are committed to their charge. It is by persons of this description that the earnest attention, and permanent decorum, which ought to pervade a class employed in visiting the sick, are so frequently interrupted. Young men of the character to which I allude attend, or, as it is quaintly enough termed, *walk* the hospitals very regularly, but they make their appearance among us rather as critics than as learners: they come not to listen but to speak; they consider the hospital a place of amusement rather than of instruction. I am happy to be able to state that such characters are not very numerous here, for this hospital possesses no other attractions, confers no special qualification beyond the knowledge which may be obtained within its walls.*

Of those who are anxious to learn their profession, a great number fail, and are found wanting when their studies are finished; in a few, the failure may be traced to a deficiency of intellectual powers; but in the majority it is owing to their studies being erroneously directed. Thus I have known many who have displayed a taste for the study of the progress and treatment of acute diseases, while they paid but little attention to complaints of a chronic nature. This predilection is not confined to students; professors and authors in general seem to participate in this taste; and, consequently, we find that acute diseases form the favourite subjects of clinical lectures, and occupy the greatest portion of medical literature—and for obvious reasons; for if the course of acute diseases, such as fever and the phlegmasiæ, be compared with that of chronic maladies, we shall find that the former begin, continue, and end in a manner comparatively so regular and definite, that their progress can often be accurately predicted, and their terminations foreseen,—a circumstance which

* Since this was written, the Meath Hospital became for several years a privileged hospital. Latterly this premium upon idleness has been again withdrawn from us, and I most heartily rejoice that this and other hospitals have ceased to form a sort of favoured oligarchy to the exclusion of the less extensive institutions of this city; everything like monopoly tends to retard the advancement of science, and I see no reason why an hospital with 50 beds should be inferior to one with 100. It is not the quantity of disease a teacher treats which renders his lesson instructive; his diligence and accuracy of observation are the best means of instructing the pupils.

enables us not only to predict the event with confidence, but obtain, by the well-timed application of active remedies, relief, evidently the result of the means employed, and, consequently, reflecting credit both upon the physician and the art of medicine. How satisfactory are our feelings on arresting the progress of pneumonia by venesection, or tranquillizing the mania of delirium tremens by means of opium!

Far different is the case with chronic diseases: in their commencement generally obscure, insidious, and irregular; in their terminations necessarily uncertain; frequently transferring themselves, as it were, from one part of the system to another, occasioning unexpected and anomalous symptoms, and involving in their destructive course almost every tissue of the body. From the very length of their duration, they are also more liable to be modified by new physical and moral influences, affecting either the mind or body; and are, in a word, more closely leagued with time, the parent of mortality. In the treatment of such affections, the greatest judgment and patience are requisite; there is here no room for the application of *heroic* remedies; nor can the physician expect, from his most persevering exertions, that speedy benefit by which he acquires eclat in acute cases, for it must be remembered that chronic diseases require chronic remedies.

This most difficult department of medicine surely claims not the least portion of your attention, and you will attach more importance to this subject, on considering that a knowledge of chronic diseases is essential to the surgeon, inasmuch as those who labour under them remain exposed to accidents which constitute his peculiar province.*

Many students fail from another cause: instead of studying the most common, and, on that account, the most important diseases, they acquire a taste for observing and relating singular and rare cases, as if their chief object was to obtain a store of curious medical information. Let me warn you against this amusing, but comparatively unprofitable employment of your time. Suffer not yourselves to be misled by those who prefer the gratification of an idle curiosity to the laborious investigation of ordinary diseases.

Students should aim not at seeing many diseases every day, not at visiting daily numerous cases; no, their object should be constantly to study a few cases with diligence and attention; they should anxiously cultivate the habit of making accurate observations. This cannot be done at once; this habit can be only gradually acquired. It is never the result of ability alone; it never fails to reward the labours of patient industry. You should also endeavour to render your observations not only accurate but complete; you should follow, when it is possible, every case from its commencement to its termination; for the latter often affords the best explanation of previous symptoms, and the best commentary on the treatment. Did time permit, I could expose many other erroneous practices calculated to render your studies comparatively unprofitable; but I must turn from the student to the teacher—from the errors of the learner to the imperfection of the mode adopted for instructing him.

I have had an opportunity of observing with attention three different methods of conducting clinical instruction; the first is that practised in Edinburgh and Dublin. I shall select that of Edinburgh for examination, being by far the most celebrated of the British schools of physic, and much

* At the time this lecture was written, the absurd idea that the education of a surgeon should differ from that of physician had not been altogether abandoned.

resorted to even by foreigners for instruction.* Two clinical clerks, one for the male, another for the female wards, are selected by the physician from among the senior pupils; their business is to write an accurate history of the cases, to report the effects of medicines, and record the symptoms which may have occurred since the physician's last visit. All this is generally done with fidelity and zeal. At his daily visit the physician stops at the bed of each patient, and having received the necessary information from his clerk, he examines the patient, interrogating him in a loud voice, while the clerk repeats the patient's answer in a tone of voice equally loud. This is done to enable the whole audience to understand what is going on; but indeed, when the crowd of students is considerable, it is no easy task; it requires an exertion almost stentorian to render this conversation between the physician and his patient audible by the more distant members of the class; while the impossibility of seeing the patient obliges all who are not in his immediate vicinity to trust solely to their ears for information.† This information is not indeed neglected, for every word so attentively listened to, and heard with so much difficulty, is forthwith registered most faithfully in each student's case-book; and afterwards all the observations the professors make in their clinical lectures are taken down with equal care and fidelity.

It is really a pity to find so much labour and diligence thrown away; for it is evident that the practice of medicine cannot be thus taught or learned, as it were by hearsay; and it is consequently to be feared, that many are annually dubbed Doctors at Edinburgh, who have been scarcely ever called on to write a prescription. The chief objection to this mode of teaching is, that however well inclined the student may be, he is never obliged to exercise his own judgment in distinguishing diseases, and has no opportunity of trying his skill in their cure; and, consequently, at the end of his studies he is perhaps well grounded in the accessory sciences—is a perfect medical logician—able to arrange the names of diseases in their classes, orders, and different subdivisions; he may be master of the most difficult theories of modern physiologists; he may have heard, seen, and, if a member of the Medical Society, he may have also talked a great deal; but at the end of all this preparation, what is he when he becomes a full Doctor?—*a practitioner who has never practised!*

I do not assert that a diligent student may not obtain a good deal of knowledge by attending one or several clinical courses in Edinburgh; no doubt he will gain many useful general ideas concerning the nature and treatment of disease; and if he himself examine the patient after the physician's visit, he may even acquire a certain degree of tact in recognising symptoms and appreciating their value. This method of instruction is indeed very useful, and nothing better can be devised for a beginner; but for the more advanced student it is by no means sufficient, nor is it calculated to give him practical experience, without which all other acquirements are of no avail. I say it does not give him *experience*, because he has at no time been charged with the responsibility of investigating a case for himself and by himself, because at no time has he been called on to make a diagnosis unassisted by others, and above all, because he has never been obliged to act

* I speak of Edinburgh as it was when I studied there in 1819.

† When this information was conveyed, as it formerly was at Sir Patrick Dun's Hospital, in Latin, the student had to encounter another barrier to the acquisition of knowledge. I have called the *language* LATIN, in compliance with the generally received opinion concerning its nature.

upon that diagnosis, and prescribe the method of treatment. If those who have been thus educated, and who have been made doctors upon so slender a foundation, were to confess the truth, we should be presented with a picture calculated to excite dismay, if not a stronger feeling. How many doubts and distracting anxieties attend such a man at his first patient's bedside? If the disease be acute, and life in imminent danger, and if he shrink under this sudden and unusual load of responsibility, he gains little credit for professional ability; if, on the contrary, inexperienced as he is, he assumes that decision of judgment, that energy of practice—which experience alone can confer, it is not improbable that the result may be still more disastrous.

Gentlemen, I am not drawing a picture from my imagination alone; I have had occasion too often to shudder at the original,—too often to deplore the sad effects resulting from the well-meant but totally mistaken treatment employed by young men; and often have I regretted that, under the present system, experience is only to be acquired at a considerable expense of human life. There is, indeed, no concealing the truth, the melancholy truth, that numbers of lives are annually lost in consequence of mal-treatment. The victims selected for this sacrifice at the shrine of experience generally belong to the poorer classes of society, and their immolation is never long delayed when a successful candidate for a dispensary commences the discharge of his duty. The rich, however, do not always escape; nor is the possession of wealth in every instance a safeguard against the blunders of inexperience.

This charge of inexperience is not necessarily confined to the beginner; it applies equally to many an old practitioner, whose errors have grown, and have increased in strength, during a long succession of years; because, from a defect in his original education—from the absence of a properly directed clinical instruction, he commenced practice without having previously acquired the power or the habit of accurate observation; because he had not in his youth been taught to reason justly upon the facts presented to his view; because, not having learned in the beginning to think accurately, he contracted a loose and careless mode of examining the progress of disease and the effects of remedies; and, consequently, the lapse of time has had no other effect upon his errors than that of rendering them more inveterate. Such a man has generally an overweening confidence in his own judgment; he never detects or is conscious of his own mistakes; and, instead of improvement, years bring only an increased attachment to his opinions—a deeper blindness in examining the results of his own practice; and do not such persons abound in every branch of the profession?—are there not general practitioners, are there not physicians, are there not surgeons, are there not apothecaries, who answer to this description, and who nevertheless are cheerful in their demeanour, and enjoy a good repute among their clients? Believe me, gentlemen, the quacks who cover our walls with their advertisements, vend not annually to the community more poison than is distributed according to the prescriptions of your routine and licensed practitioners:—and yet the science of medicine is improving daily, and treatises on the practice of physic are every day multiplying. Why, then, is society so infested? Many circumstances concur to produce this effect; but the most influential is undoubtedly that which now occupies our attention,—I mean a system of clinical instruction radically wrong, because it does not teach the actual practice of medicine. Is there any other profession or art, or even trade, in which any but a madman would embark unprovided with a store of practical knowledge? But enough of this unpleasing subject. Let us next

consider what systems have been adopted in other countries, with a view of judging how far it is either practicable or expedient to introduce them into this.*

In France, the mode of conducting clinical instruction is very similar to that which we have already described, and is consequently attended with nearly the same advantages and defects. In the French hospitals, however, no reports are dictated to the clerks, and more care is taken to explain the symptoms and progress of each case at the bed-side of the patient : in fact, these explanations, answering to the original institution and design of clinical lectures, are attended with many important advantages, and are well worthy of imitation. By this means, the trouble and uncertainty of a circumstantial and detailed description are frequently avoided by a direct reference to the matter to be described ; and the interest of the student is secured by a very slight exertion on the part of his instructor, while the latter owes many new ideas to the degree of attention which he is thus forced to give each case. It is true that the duration of the visit is thereby increased ; and in Italy, where the same plan is pursued, it is not unusual for Tommasini to expend, in the morning, more than two hours upon eight or ten cases, besides the time devoted in the evening to the same purpose. When the importance of the subject to be taught is so great, it is wisely judged that the teachers must be laborious ; and it is thought necessary to use every possible means to convey clear ideas concerning each case to the student. His attention is not distracted by seeing a great number of cases in rapid succession, nor (as is too often the case in the hospitals of Dublin and London) are the inquiries dictated by a laudable curiosity on the part of the student suppressed by a forbidding demeanour or an uncourteous answer from his teacher.†

Although the French clinic thus presents several manifest superiorities over the British, yet it is liable to the chief objection already urged against the latter—that the student is not supplied with an opportunity of learning the actual practice of his profession. I am by no means disposed to join in the cant of humanity ; yet I cannot overlook another disadvantage to this mode of teaching. I cannot help feeling that it is scarcely justifiable to lecture upon a patient's case in his presence, and in his native language ; that it is cruel to explain, (as must, when this method is adopted, be often done) that the patient is labouring under a fatal complaint. During such a lecture I have often watched the worn and pallid countenance of the sufferer, while he listened attentively to the record of his past and present sufferings, and I have marked the settled expression of despair it assumed when the prognosis thus

* As truth has obliged me to expose a fault which the Edinburgh school shares in common with the other schools of Great Britain, I am bound in candour to acknowledge the very great advantages which Edinburgh, in other respects, offers to students ; they there find themselves surrounded by so much diligence, enthusiasm, and zeal, that they can scarcely resist the impulse of improvement, and consequently many learn there to think and to labour, who had been previously careless idlers. That such was the case until within the last few years is undoubtedly true ; but what can be said now in favour of a university in which the Professor of Pathology is not only an avowed homœopathist, but has written a book with the view of proving the *truth*, and promulgating the doctrines of that ridiculous sect of quacks,—and the Professor of Chemistry, a Professor of Animal Magnetism ?

† In this respect our hospital physicians and surgeons have improved much since 1821. I am strongly disposed to believe that the improvement was not owing to a voluntary change, but to a certain salutary fear of public castigation from the weekly medical press ; much, however, remains to be done, for the influence of the last century has not yet entirely ceased, and there are those still lingering among us, who no doubt regret the aristocratic era when an impassable gulf lay between the student and his teacher.

tediously ushered in, was too clearly announced. It is cruel to banish from the sick man's bed his sole remaining comfort ; it is unmerciful to scare away hope—his only consolation during hours of pain and watching. We ought never to allow any expression to escape from us which could possibly add the terrors of apprehension to the weight of actual suffering. On this account, while we borrow the useful part of their system from the French, we must correct so glaring a defect by making use of the Latin language, whenever it is absolutely necessary to make any observation that might alarm the patient.* One of the most important duties of a surgeon, or physician, consists in the practice of humanity ; and it is very doubtful whether the student does not experience as much difficulty in deriving benefit, not so much from the precept as the example of his seniors, in this department of his profession as in any other.

Observe, gentlemen, I speak not of French, but of Irish hospitals ; for, with the exception of the objection already adverted to, the conduct of the French medical men is in every respect praiseworthy. We do not find them indulging in coarse, harsh, and even vulgar expressions to their hospital patients ; we do not find them provided with two vocabularies—one for the rich, and another for the poor.† The medical, more than any other profession, requires that the better feelings of our nature should be cultivated and fostered. The nature of anatomical pursuits obliges us to violate many of our natural prejudices, and disregard some of our strongest propensities ; let us therefore be doubly anxious to give, by means of the most diligent cultivation, an additional and more vigorous growth to our better feelings—to our social affections ;—and if we are accused of disrespect for the dead, let us answer the accusation by our humanity to the living.

But to return to our subject. The third mode of conducting clinical instruction is that adopted generally throughout Germany ; and which, in addition to the means of improvement comprehended in the plan of the French and English methods, possesses the advantage of allowing the more advanced students to undertake the care of patients in the hospital, under the direction of the attending physician.

The importance of clinical instruction is so much felt in Germany, that each school has three distinct medical clinics attached to it, by which means, the labour of teaching is divided among the professors, and the number of students attending each is diminished. There is one clinical hospital for the treatment of acute diseases, and another for chronic diseases, while a clinical dispensary is devoted to the care of extern patients. The pupils are divided into two classes,—the more advanced, who get the care of patients,—and the junior students, who merely look on and listen. When a patient is admitted, his case is assigned to one of the practising pupils, who, when the physician is visiting the ward, reads out the notes he has taken of the patient's disease,

* This rule is always observed in Germany, a country remarkable for the zeal and humanity of the medical profession. In Italy both professors and students are less scrupulous. Thus Dr. Clark relates that he has heard the case of a phthisical person explained in all its bearings by the professor of Bologna, in the patient's presence : in another instance, which occurred at the same place, a female, labouring under cancer uteri, burst into tears on hearing a detailed account of the nature of her complaint.

† When the above lecture was delivered, the abuse I speak of was but too frequent ; and will it be credited, that many other and greater abuses had existed during the preceding generation ? Death, the most efficient of all reformers, had then removed several of the chief actors from the scene, for which, as on most other occasions, he has, I rather think, been undeservedly censured.

including its origin, progress, and present state. This is done at the bed-side of the patient; and before he leaves the ward, the physician satisfies himself whether all the necessary particulars have been accurately reported by the pupil. After all the patients have been thus accurately examined, the professor and his class proceed to the lecture-room, and a list of the patients and the practising pupils is handed to the professor: the cases admitted that day are first inquired into, and the pupils are examined concerning the nature of their diseases, their probable termination, and the most appropriate method of treatment,—each student answering only concerning the patients entrusted to his special care. During this examination, the pupil's diagnosis and proposed remedies are submitted to the consideration of the professor, who corrects whatever appears to be erroneous in either, and then the student retires to write his prescriptions, while the rest of the cases and pupils undergo a similar examination. At the conclusion, the prescriptions written by the students are read out in order by the professor, who strictly comments on and corrects any inaccuracy or inelegance they may contain. When the prescriptions have been revised and corrected, they are signed by the physician, and handed to the apothecary to be made up and distributed. In some clinics, the price of each medicine is affixed to the bottle or box containing it, in order that the students may become acquainted with the comparative expense of various prescriptions, and may thus be enabled, in private practice, to accommodate, as far as possible, the expense of the remedies to the circumstances of their patients. The clinic for extern patients is conducted on the same principles: patients who are able to attend, are examined at the dispensary; those who cannot leave their homes, are visited by the senior practising students, who always seek the advice of the professor when the case is urgent or the treatment doubtful.

Nothing, gentlemen, can be better adapted than this plan of clinical instruction for the improvement either of the beginner, or of the more advanced student; this daily deliberation and anxious discussion concerning the nature and treatment of each case is peculiarly interesting, and serves to accustom the beginner to habits of accurate examination, whereby he is taught to interrogate nature for himself, and learn the history and treatment of disease, not from books and descriptions, but from direct observation. The advantages gained by the practising pupils are too obvious to require comment: being obliged to give reasons for every plan of cure that they propose, they are accustomed to a rational and careful investigation of disease; and enjoying the most important of all advantages—the early correction of their errors—they commence private practice with a sufficient degree of experience to render them unlikely to commit any very serious mistakes.

It is evident that, according to the German method, no regular clinical lectures are necessary, as the pupil becomes accurately acquainted with the physician's views of each case, and no step is taken in the treatment without the reasons for it being given. This is the best sort of clinical lecture; the pupils have their doubts solved, and their erroneous views corrected, while the professor is enabled to mention, as the disease proceeds, every thing which he thinks illustrative of its nature.

Eleven years' experience, since I first delivered the foregoing observations, enables me strongly to recommend the method of instruction pursued in Germany. Since my appointment to the Meath Hospital I have had extensive opportunities of observing its good effects. Not a session has elapsed

without furnishing proofs in its favour. This system, however, at first met with much opposition, and its introduction was ridiculed in every possible manner; even now it may be doubted whether its well-wishers are as numerous as might be expected. It is still opposed by several narrow-minded persons, whose opinions have much weight with the pupils.

I remember perfectly well having only two practising pupils in one class, but I was not discouraged; and although we have had many numerous classes in the Meath Hospital, I doubt if any of them contained more talent and worth than was shared between my two pupils, Dr. Townsend and Dr. Stokes.

Since the latter, from being my pupil, has become my colleague, he has evinced the most indefatigable zeal in co-operating with me in instructing the pupils of the Meath Hospital; and I am sure he joins me in testifying the constant gratification we have received from observing that our efforts have been so far successful, that no season elapses without bringing under our immediate observation several pupils whose diligence, zeal, and moral worth insure our warmest approbation. Many of these gentlemen have already distinguished themselves,—and will always carry with them the best wishes of myself and my colleague.

Six and twenty years have now elapsed since the foregoing part of this lecture was delivered in the old Meath Hospital, and my subsequent experience has amply verified the opinions therein expressed. I regret to say that however influential these opinions may have proved in this city, their promulgation has produced but little benefit in causing any alteration in the mode of instruction pursued in the medical schools of the United Kingdom at large. So far indeed from the mode of conducting medical education being improved, it has decidedly been altered for the worse. This assertion may appear paradoxical, nay almost incredible, when it is recollected how many new Universities and Schools have arisen since the year 1821, and how many novel medical professorships have been founded.

But if we carefully examine into the instructions given, and the qualifications required in the first and most recently organized medical school of the day, viz., that of the London University, it would readily appear that a very small part of the student's time and attention is directed to acquire a knowledge of how disease is to be actually treated and cured—unless, indeed, we admit that a knowledge of Greek and Latin, of mathematics, algebra, and optics, of physics, botany, and chemistry, is necessary for this purpose. That this multiplicity of subjects distracts every student, is sufficiently evident *a priori*. And my own experience, from opportunities as a public teacher for many years, has satisfactorily convinced me that the practical parts of medicine are not taught so well now as formerly.

It is not intended to assert that pupils now hear fewer clinical lectures, or attend a shorter time in the hospital, but it may be confidently affirmed that what they hear in these lectures, or see in the hospital, does not rivet attention or excite reflection now as formerly. For the pupil's avocations are so numerous, that he is hurried from one to the other, and has no time to devote to serious reflections upon what he has seen.

In Edinburgh, the engrossing subject of conversation amongst students used to be the nature of the diseases of the clinical patients, and the effects of remedies employed; the clinical ward afforded constant themes for discussion, and its contents were constantly before the thoughts of the student.

Such was Edinburgh in 1819, how it may be now, I cannot tell; but be it changed for the worse, which I hope is not the case, it must result from a change in the system, and not a deterioration in the professors, whose unwearying diligence in the promotion of medical science daily brings forth fruit not unworthy of the best era of their predecessors.

When so many seductive subjects are successively placed before the student, it cannot be expected that he will think almost exclusively on what is practical. On the contrary, the chances are that the chief energies of his mind will be misspent on the fascinating experiments and doctrines of chemistry, electricity, magnetism, and the polarization of light, to the exclusion of the less fascinating but all-necessary subject of disease and its treatment. In truth, the very rapid advances in the so-named collateral sciences have, of late years, seemed to render the practical improvement of the student less probable, and every day it becomes more unlikely that he will attain to the simple goal that he ought to hold in view, but will be diverted from the pursuit of the one indispensable object by the very means which he is taught to believe are necessary for its attainment. To this subject I shall recur in the following lecture, concluding this with an expression of satisfaction that since the first publication of my views upon medical education, they have been brought forward and enforced in several leading articles by the able editor of the *Medical Gazette*; and they have had, I have reason to hope, a favourable effect upon the manner in which medical education is conducted in my native city.

LECTURE II.

PRELIMINARY EDUCATION.—MODERN NOMENCLATURE.—
LIEBIG'S THEORIES.

HAVING now explained the advantages of this, the German mode of clinical instruction, I shall content myself with remarking that we have had many years' experience of its beneficial effects in the Meath Hospital, where it was introduced by myself in 1821 ; I must remind you, however, that even its utility is necessarily proportioned to the diligence of the student. There is no system capable of communicating information to the indolent ; every man must depend chiefly on his own assiduity, and all the teacher can do, is to facilitate the means of acquiring knowledge, and afford an example of punctuality and attention. I would seriously recommend every one who undertakes the management of cases, to set out with a fixed determination to persevere throughout the whole session. Few things give me more concern than to find young men, who have commenced with ardour, becoming by degrees less and less industrious, until their hospital attendance degenerates into an irksome task, imperfectly performed, and at last wholly neglected. One of the most valuable things which the student can acquire, is a *habit of daily diligence*. The knowledge requisite for the efficient discharge of our professional duties is not to be acquired by sudden starts of intense application, or by the overwrought strivings of desultory exertion ; it demands a daily and hourly attention, a steady, constant, and accurate course of observation, continued uninterruptedly for years.

I think students are very much misled as to the best mode of becoming good practitioners. This is an age of ambitious acquirement, and professional men seem to be ashamed unless they have the character of universal knowledge. Every body studies every thing, and the consequence is that few know any thing well. We live amidst the din of declamations in favour of general education ; and are every where assailed by the ceaseless competition of those who vend cheap knowledge in the form of penny periodicals, lectures innumerable, and hosts of rival encyclopædias ; but ours is not an age of calm unpretending acquirement and severe precise study, without which, the effort to become good physicians and surgeons must prove vain and fruitless.

Can any thing be more embarrassing than the multitudinous array of studies presented to the young student, who comes to London or Dublin with the view of educating himself as a general practitioner ? So many departments of knowledge are spread before him, and so numerous are the exhortations to study each with particular care, that he feels at a loss where to begin. The merits, advantages, and necessity of his own branch, are insisted on by the respective teachers, with all the force of impressive eloquence ; and after running the round of introductory lectures—an initiatory penance duly performed by all beginners, he returns in the evening to his home, puzzled and

dispirited. He finds that it will be necessary for him to become an excellent botanist, an able and scientific chemist, and a profound anatomist ; that he must have some knowledge of zoology, be well versed in comparative anatomy, know how to detect poisons with accuracy, and study the legislative enactments which bear on questions of medical jurisprudence. Physiology, materia medica, therapeutics, nosology, morbid anatomy, the principles and practice of surgery, medicine, and midwifery, claim, all and each, his especial attention ; nay, many teachers insist upon the necessity of his becoming master of several languages—Greek, Latin, French, and German : while others assure him that he never can prosecute scientific medicine with success, unless he studies physics as well as physic : some are there even who encourage him to cultivate mineralogy and geology, as if forsooth a knowledge of these sciences could teach the laws that regulate diseased action, or the indications which should govern the exhibition of remedies. In a lecture published by Mr. Hayden, I find it remarked “that to keep pace with the modern race of intellect, we should get on a railroad of literature ; mathematics, natural philosophy, the art of drawing, and, above all, logic, will be indispensable.” Dr. Elliotson would no doubt add metaphysics, animal magnetism, and phrenology, sciences he has cultivated with success, and taught with perspicuity ! Dr. Latham, who has had sufficient courage to put forth his opinions on this subject, has demonstrated, with much truth and force, the injustice and folly of attempting to impose so many burthens on the minds of students, and has shown clearly the bad consequences resulting from such a mode of proceeding.

No profession requires a sounder preliminary education than ours, and in none ought education be more studiously directed to promote the activity and development of the mental powers, especially those connected with *the habit of observation* as well as with *the judgment and memory*. The latter faculty should be cultivated from the earliest period, and the boy should be taught the chief anatomical names, as those of the different parts of the muscular, nervous, and vascular systems, which names he will of course find no difficulty in retaining when a man, and it will then be only necessary to learn the qualities of the things to which they belong. If, in addition to this, boys were taught the scientific names of the chief articles of the materia medica, and the technical terms and classifications of botany and chemistry, much trouble would be saved them in after life ; and their memories, while in the state of greatest activity, would be much better employed than in attaining the rules and terms of syntax, prosody, mythology, and ancient geography.

I would not recommend any one to commence the actual study of medicine and surgery until the age of nineteen. Before that period the mind is not sufficiently ripe for practical observation, nor sufficiently stored with that knowledge—only to be gained by the daily intercourse of life—which teaches us to estimate the effects of moral or physical causes on the human system, imparts to us the power of weighing conflicting evidence, and detecting the too frequently incorrect and erroneous statements of our patients. *A certain knowledge of the world* is indispensable to the physician ; and it is only loss of time—yes, of precious time—to employ boys in trying to learn what can only be acquired by men. Those who attend hospitals at too early an age are very apt to acquire careless habits of observation ; all the interest which disease presents, when observed for the first time by matured minds, is lost to them, and all the attractions of novelty have ceased long before they possess that tact and experience which enable the adult to understand the

meaning of symptoms, the progress and phases of morbid phenomena, and the effects of therapeutic agents.

It is then the duty of parents, guardians, teachers, and all who superintend the education of youth, to see that those who are destined for the medical profession should have their minds prepared and strengthened by diligent cultivation during early youth, not only by the attainment of extra-professional knowledge suited to their means and opportunities, but also by instruction in those portions of anatomy, materia medica, botany, and chemistry, which may be readily comprehended at that age. Especial care should be taken to impart to them some knowledge of the physical qualities of medicinal substances. All this being done, when the student, arrived at maturer years, comes to grapple with the practical departments of his profession, he will find many difficulties easily surmounted, and at this period he should disengage himself from too devoted an attention to the accessory sciences. But he need not wholly detach himself from them; some one of them may be cultivated along with his more serious pursuits. He may devote one session to lectures on chemistry, another to those on botany, a third to physiology, and so on of the rest. But his main object must now be the acquisition of practical knowledge, and consequently the greater portion of his time and energies must be devoted to the clinical wards and dissecting-room of an hospital, to the study of materia medica and pharmacy in an apothecary's shop, and to practical anatomy.

Five or six years' attendance on an hospital will be little enough to qualify you to enter with propriety and confidence on the discharge of your professional duties. Bear in mind, gentlemen, that when you come to treat disease, you approach the bedside as physicians or surgeons, and not as chemists, botanists, or anatomists. This is the character in which you are to appear; and, to the acquisition of knowledge which will prepare you for the discharge of its duties you ought to apply your chief attention.

Some of you, gentlemen, may think that it ill becomes a teacher to narrow the limits of your exertions, or circumscribe your pursuits. But let me be understood. What I wish to impress upon your attention is, that you ought to address yourselves mainly to the acquirement of what is really useful, and should store up chiefly what is most important and available. And in furtherance of this object I think it my duty to warn you against the well-meaning but injudicious representations of those who would turn you from the study of practical matters to the cultivation of their favourite sciences—sciences connected with and ancillary to medicine, but in which medical students are too often encouraged to engage with an ardour that indirectly but certainly leads to a less zealous and efficient attention to more important matters. Take, for instance, two of the most popular of the adjunct sciences—two usually regarded as most intimately connected with the study of medicine—botany and chemistry. Both are extremely valuable in themselves, and a certain acquaintance with them is undoubtedly desirable; but to the student in medicine their utility has been greatly overrated. Botany is an extremely interesting and useful science; but I believe you might be very good practitioners without knowing the classes of Linnaeus, or the families of Jussieu. To be sure, if you had the misfortune to practise in localities separated from the ordinary channels of commerce; if you were suddenly bereft of the numerous stores which maritime enterprise pours into the lap of medicine, and obliged, like the herbalists of old, to search the woods and fields for your materia medica, you would certainly be often at a

loss, and might make some serious mistakes, unless you were adepts in practical botany. But this labour, fortunately for us and for every European practitioner, is quite unnecessary. A small capital will bring the vegetable productions of the most distant countries to your door ; and any respectable druggist will for a trifling sum provide you with all the medicinal substances derived from plants, carefully selected, and accurately prepared.

Those who boast the most loudly of their acquisitions in botany, and who lay most stress on its importance, know very well that to the physician it is of little or no practical value. Take one of the best of our English or Irish botanists, and see how meagre a knowledge he possesses, after all, of many of the plants whose products are employed so largely every day in the treatment of disease. Transport him suddenly to the East or West Indies, to Africa, or South America, ask him to show you the camphor or the cinnamon-tree, the cajeput, the croton, or the guaiacum : I doubt very much whether he would be able to recognize logwood, or even ipecacuanha, growing in their natural situations. Again, there are a great many vegetable productions used every hour in medicine, of which it may be said that no two botanists are agreed as to the precise description of plant from which they are derived. There is no substance in such common use as gum Arabic, and yet, notwithstanding all that has been written on the subject, it is not clear from what particular plants it is derived. Nor do I think it necessary to know whether the gum we use in compounding a cough medicine comes from the *Acacia vera* or *Acacia Arabica*. In like manner, the plants which furnish cardamoms and many other substances in common use are by no means determined. How many disputes have there been with respect to the genus *Cinchona* ? And what has been the result of all our investigations concerning the plant which produces this great remedy. Listen to what my late learned friend Andrew Duncan says, in the supplement to the *Dispensatory* : "Notwithstanding that all the British colleges agree as to the botanical species of cinchona from which the commercial varieties of bark are derived, there is no satisfactory evidence that they are right ; on the contrary, it is almost certain that in regard to some of them they are wrong." How many years were calumba and many other similar productions employed, before scientific botanists knew anything of their true history ? In 1829 a paper was read by Dr. Hancock, on the tree which yields the Angostura bark ; it appears that even Bonpland and Humboldt had described the wrong tree, and consequently it has been called for many years a *Bonplandia* ; whereas it belongs, it now appears, to another genus, named *Galipea*. Dr. Hancock has also proved that the *Smilax syphilitica* of Willdenow is not the true sarsaparilla, but that it is obtained from other plants : and at what conclusion does Dr. Hancock, who spent many years in South America, arrive ? Why, that the only criterion for knowing good sarsaparilla is its taste when chewed ! In proof of the uncertainty which still prevails concerning the determination of species used in medicine, I have only to refer you to the admirable lectures of Mr. Pereira in the *Medical Gazette*, and those of Dr. Sigmond, published in the *Lancet*.*

* In the number of the *Quarterly Review* for June, 1842, we find some very pertinent observations upon the ridiculous names given to many flowers, and the inconveniences likely to arise from the frequent changing of them.

The reviewer says, "Before we have done with the florists and botanists, we must say one word about their nomenclatures. As long as the extreme vulgarity of the one and the extreme pedantry of the other continue, they must rest assured that they will scare the

I do not wish to undervalue botany as a part of general education. Few sciences are more attractive, and few are more likely to become an object of enthusiastic pursuit; but it is the very enthusiasm it is so likely to generate that I wish to warn you against. Botany is an excellent exercise for the minds of youth: it gives habits of accuracy of observation, and tends to strengthen the memory. It leads to healthy occupation, and affords a source of innocent enjoyment. As productive of so much good, let it form a part of the education of young persons in general; sure I am that its cultivation would give a healthier tone to both mind and body, than is to be obtained from many of the studies with which boys are now tortured in the schools. But let botany be restricted within its proper limits; and when once young men have seriously engaged in the acquirement of medical and surgical knowledge, let them not entertain the ambition of becoming accomplished botanists.

Speaking of botany, I may observe that it is much to be regretted that the names of plants should undergo so many mutations. What was formerly called *Stilozobium* has successively become *Dolichos* and *Mucuna*; while Iceland moss has been changed from *Lichen* into *Cetraria*, and *Secale cornutum* into *Acinula clavus*. *Uva ursi* is now preceded by the prænomén *Arctostaphylos*; and our old acquaintance *jalap*, deprived of its euphonic prefix *Convolvulus*, has degenerated into *Ipomœa*, still further converted, more recently, into *Exogonium*. All these changes are useless or injurious, and entail, as a necessary consequence, that the young, the middle aged, and the advanced in life, use a different medical vocabulary. The *materia medica* too, as now taught by scientific professors, presents a serious stumbling-block to students. Teachers do not confine themselves to showing the different drugs and preparations, but they enter into very minute details of their natural history and characters; so that the student cannot learn the properties of bees' wax without being entangled in the difficulties of entomology,

majority of this fastidious and busy world from taking any great interest in their pursuits."

After objecting to many modern names, he adds, "Surely there is marked character enough about every plant to give it some simple *English* name, without drawing either upon living characters or dead languages. It is hard work, as even Miss Mitford has found it, to make the *maurandias*, and *alstræmerias*, and *escholtzias*—the commonest flowers of our modern gardens—look passable even in prose: they are sad dead letters in the glowing description of a bright scene in June. But what are these to the pollopostemon-opetele and eleutheromacrostemones of Wachendorf, with such daily additions as the native name of *iztactepotzacuxochitl icohueyo*, or the more classical ponderosity of *Erisylum Perofskyanum*?

"Like the *Verbum Græcum*

Spermagoraiolekitlolanopolides,

Words that should only be said upon holidays,

When one has nothing else to do.

"To make confusion worse confounded, our botanists are not satisfied with their far-fetched names; they must ever be changing them too. Thus it is a mark of ignorance in the world of flowers, to call our old friend *Geranium* *Geranium*; the *Glycine*, (*G. Sinensis*), the well known specimen of which at the Chelsea Pelargonium; produced more than 9000 of its beautiful lilac, laburnum-like racemes from a single stem, is now to be called *Wistaria*; the new Californian annual *Eriogonum* is already *Godetia*; while the pretty little red *Hemimeris*, once a *Celsia*, is now (1890, a designation) an *Alonsoa*; and our list is by no means exhausted. Going on at this rate, a man might spend the morn of his life in arriving at the present state of botanical science, and the rest of his days in running after its novelties and changes. We are only too glad when public sanction triumphs over individual whim, and, as in the cases of *Georgina* proposed for *Dahlia*, and *Chryseis* for *Escholtzia*, resists the attempted change."

or the nature of isinglass, without learning the hard names used in ichthyological classification.

The same observations apply to chemistry. It is a science fully as attractive as botany, and medical men are apt to spend too much time in its pursuit. Some very pertinent observations on this subject have at different periods appeared in the *Medical Gazette*, to which I refer you : they are conceived in a spirit of good sense and sound judgment, and you will find them well worthy of an attentive perusal. I grant that it may appear very like a paradox to say, you need not know much practical chemistry. But if you go to a reputable druggist with money in your pocket, he will furnish you with all the chemicals you have need of, excellent in their kind, and prepared with scrupulous exactness. So far as chemicals are required for medicinal uses, you can have them all of the best description. But it will be said, that without an accurate and extensive knowledge of chemistry you cannot prescribe. This is an assertion to which I cannot assent. A very limited knowledge indeed of chemistry will enable you to ascertain what substances are compatible with each other, and a small share of attention will prevent you from making any important mistakes. Besides, you are all aware that many of our best prescriptions contain incompatible ingredients ; and that many compounds, which would be sneered at by the mere chemist as heterogeneous and absurd, prove decidedly efficacious in medicine. Granting that a certain degree of chemical knowledge is requisite, it does not follow that you should be scientific and accomplished chemists. It is not necessary that you should dive into all the arcana of the science, or have your memories loaded with atomic numbers, symbols, and equivalents.

Let me repeat with respect to chemistry what has been already observed concerning botany. Students should attend one or two courses of this science as preparatory to the study of medicine, and during the period of that study they may attend another, in order to keep up and improve their knowledge ; but they should never allow chemistry to cause them to absent themselves from the hospital for a single day. Theoretical and philosophical call for your attention, less than animal and pharmaceutical chemistry.

But you are told that you may be called on to decide questions of medical jurisprudence, which demand an accurate knowledge of chemistry ; that you will be required to test poisons, and detect them when accidentally or purposely mixed with food or drink. What should you do in such cases ? Why, do not undertake any investigations of the kind, refuse to make them, refer them to those who are competent to the task. Where will you find a man engaged in the practice of physic fully capable of deciding such questions ? What practising physician or surgeon is competent to enter at once upon an investigation of this nature ? I have lectured some three or four years on medical jurisprudence, and have bestowed a good deal of attention on the subject, and yet if called on to decide a case of poisoning, I would refuse, and say I was incompetent to the task. What then is to be done under such circumstances ? This is a matter of deep importance to society. It is of the utmost consequence that the wretch who poisons should not escape, and that the innocent should not suffer. It therefore behoves the Government to employ and pay persons capable of deciding such questions. Then, and not till then, will the duty be duly performed, and the decisions be such as the public can look up to with respect and confidence.

So far with respect to a knowledge of chemistry as connected with the choice and prescription of medicines, or the analysis of poisons. As to any

benefits derived from analytical chemistry in solving the problems of vital action, or elucidating the functions of the various organs in health and disease, they may be said to be few and unimportant, and inconclusive. Few and scanty, indeed, are the rays of light which chemistry has flung on the vital mysteries. I am not aware that it has revealed any of the master secrets of the organism, or detected the sources of those important aberrations from normal action which we are called on to study every day and every hour. Chemistry has failed most remarkably in revealing the arcana of life; and notwithstanding all her boasted discoveries, we are still very little in advance of those who practised the healing art some centuries ago. Chemists, the ablest of their class, have bestowed the most minute and unwearied attention on the analysis of fibrin, and gelatin, and albumen; and what have they discovered? Simply this: that substances so apparently distinct in their vital relations, and so different, or even opposed, in their physical properties, are analogous compounds; that there is scarcely any difference in their elementary composition; and that their atomic constitution is nearly identical. How long have chemists laboured in attempting to detect the cause of animal heat! How many experiments have been made for the purpose of ascertaining the effect produced on the air by respiration? How many able and ingenious men have sought a chemical explanation of the difference in point of colour between arterial and venous blood! All these investigations have proved indirectly useful, but none of them have revealed the secrets sought; and we are still in profound ignorance of the powers which direct and modify the unceasing operations of the laboratory over which *life* presides—that mysterious influence, which, like the Deity from whom it emanates, is invisible, inscrutable, incomprehensible.

So much for the light which chemistry has shed on the vital actions, and on the nature of organized compounds. There are, to be sure, one or two instances in which a rough examination of some organic products is necessary: as, for example, of the urine, in certain cases of gout, gravel, and dropsy. But even in these instances a few simple rules will suffice, and sufficient information may be obtained by one moderately acquainted with chemistry. Generally speaking, the chemical knowledge requisite for the study of disease is very limited; and those who are engaged in the practice of medicine are well aware, that cases demanding an accurate or extensive knowledge of chemistry are of extremely rare occurrence.

Let me now advert to a serious inconvenience which the chemists have imposed upon the medical world. They have, it appears, not only assumed to themselves the privilege of naming our medicines, but also of changing those names every five or six years. One of my ablest and most diligent pupils (Mr. Moore) has taken the trouble of drawing up a table, shewing the various names which have been successively bestowed on each substance since the days of Lavoisier. I have the table here before me, and I find that most chemical substances have, in the space of fifty years, undergone at least five changes. Of course, as the march of chemistry progresses with accelerated speed, we may give our nomenclators credit for an increased tendency to revolutionize the chemical vocabulary, and conclude that they will change them five times within the next fifty years. In 1890, how will a man be able to recognise a substance whose name has undergone ten mutations? I am anxious to dwell on this defect as being pregnant with perplexity and confusion. It would almost seem as if some enemy to our profession had invented the chemical nomenclature for the purpose of retarding the advance

of practical medicine. Of what use will a practice of Physic, published in 1800, be to the reader who peruses it in 1900? We all know how easily the mind of man is deterred by difficulties; how few there are who will submit to the labour of becoming genealogists in chemical names.

Many and able men foresaw this difficulty from the beginning, and raised their voices against the adoption of names meant to convey a knowledge of the chemical composition of mineral and saline medicines. Bostock and Murray have both written ably on this subject, and I regret much that their advice has not been duly weighed and considered. In practice, many serious inconveniences arise from this vacillating state of chemical nomenclature. Every apothecary knows that mistakes occur from day to day, owing to the shifting character of chemical nomenclature, and I think it is time for us to bestir ourselves, and make a stand against the useless and dangerous innovations of the chemists. We should come forward boldly, and declare that we will not be made the slaves of names. Compare our last Pharmacopœia with its immediate or penultimate predecessor, and the difficulties a physician has to encounter will be obvious. Are we to be perpetually called on to learn new names? Must an artificial method of forgetting become even more necessary than a *memoria technica*? Must my prescriptions of 1818 be translated into a new language, if I wish to employ them now? It is time, then, to protest seriously against having our memories loaded with a polyglot vocabulary, and our ideas confused by a perpetual alteration of names. I do therefore assert boldly, that much benefit would accrue from reverting to the old system, and employing names which have no direct reference to the substances. I do not see any reason why we should not continue to call calomel, calomel; nor do I see any advantage in giving it any of the numerous modern appellations supposed to indicate its chemical constitution. I am glad to find that this view of the subject has the able support of Dr. Sigmond. He quotes Professor Brande as being of opinion that "it is very inconvenient to alter pharmaceutical terms according to the changes in chemical nomenclature; and as physicians in practice have not come to accord in this particular, I can see no objection to the term *calomel* for one substance, and *corrosive sublimate* for the other, pharmaceutically speaking. It is a subject of deep regret," adds Dr. Sigmond, "that the attempt should be made, because it never can be successful; for some chemists will call calomel *protochloride*, others *chloride*, and some denominate sublimate *perchloride*, others *deutochloride*, and others again, as does the Royal College of Physicians, *bichloride*." How remarkably corroborated is the truth of these remarks by the fact, that at present nearly all chemists agree in considering calomel a *subchloride*, and corrosive sublimate a *chloride* of mercury?

What is the use of a name? To designate a thing—to point out any substance, so that when we call for it we may get *it*, and nothing else. This is all that is necessary. When you tax a name beyond this, you exceed the limits of ordinary language, and demand too much. The old names for our medicines are not inferior, in this respect, to the modern ones imposed on us by chemists. Tartar emetic is a good and significant name, and yet I perceive it has been altered several times before, and again in the last edition of the London Pharmacopœia. Why is it that the preparation of bismuth used in pyrosis has been three times changed in my own memory? What alterations have not the carbonates of iron and of alkalis undergone? As for Fowler's solution, corrosive sublimate, Mindererus' spirit, and Æthiop's mineral (all good standard names), they are now nearly extinct, and have been superseded

by a new generation likely to prove as unstable as their predecessors. Many other substances have undergone the same fate. Where will the revolution stop? Indeed we seem, at the present moment, as far removed as ever from the establishment of a stable system of chemical names. The progress of investigation discloses almost daily new views of the mutual relations between the elements constituting compound bodies; the atoms associated together are divided and subdivided into new groups, and, consequently, the symbolical representation of every compound assumes a new configuration, and is subdivided by brackets, altering their places with each successive advance of science. The labours of Bornsdorff and Hare already threaten the nomenclature of Berzelius, and the *chlorure platinosopotassique* of the latter, now considered as a compound of chloroplatinous acid and the chlorobase of potassium, must then be called chloroplatinite of potassium.

In a retrospect of the progress of chemistry for the years 1846-7, published by Mr. Sullivan in the number of the *Dublin Quarterly Journal of Medical Science* for February, 1848, at page 243 is the following paragraph:—"Thus, NaO , $\text{SO}_3 + 10\text{Aq}$, would be *natan-afinwasue*; 2NaO , 11O , $\text{PO}_5 + 24\text{Aq}$, would be *jenatan-alan-apun-weso*; NH_4O , Al_2O_3 , $4\text{SO}_3 + 24\text{Aq}$, one of the most complicated formulæ, would be *atolan-telmin-ojafin-weso*, a word which is certainly longer than ammonia-alum, but shorter than crystallized sulphate of ammonia and alumina, and even than the formula, which has eighteen syllables when read, while the new name has only ten." If such names be ever introduced into our Pharmacopœia, I fear we must get over some of the aborigines of the South Sea Islands to teach us how to pronounce them!

If chemical names are still to be formed with the view of expressing chemical composition, there is no end to the complication and length at which they must arrive. If they express composition, it is worse than useless were they to do so incompletely. A name whose structure designates the nature of the thing named must, in chemistry, to be serviceable, designate it with perfect accuracy. Professor Kane has analysed, in one of his very able papers, a crystalline substance obtained by boiling the white ammonia subnitrate of mercury with solution of ammonia. Suppose this substance to be introduced into the Pharmacopœia, how can it be named in conformity with the principle which attempts to make each name expressive of the composition of the matter named? Its composition is stated by Professor Kane to be—one atom of nitrate of the oxide of mercury, *plus* two atoms of oxide of mercury, *plus* one atom of amide of mercury, *plus* two atoms of the nitrate of the oxide of ammonium, *plus* two atoms of the oxide of hydrogen. Even if the ingenuity of chemists had surmounted the difficulty of inventing a name capable of expressing the nature, number, and mode of aggregation of the above elementary atoms, is it probable that a name, so gifted, would be of a length manageable by either the tongue or the memory? Is it certain that future experiments may not unfold new views concerning the arrangement of the constituent atoms, and thus nullify the old, by requiring the adoption of a new designation?

The following apposite remarks on this subject are extracted from a review of Dr. Gregory's Chemistry, in the *London Medical Gazette* for October 3rd, 1845. The reviewer, in noticing some of the new organic substances described, and the metamorphoses which they undergo, says, "Clever as this exposition is, we fear that it will be as unintelligible as Coptic or Sanscrit, not only to practitioners, but to the present race of students, who are apt to look very closely to what concerns them in their examinations. There is,

however, this consolatory reflection, that the examiners would themselves have to go to school again before they attempted to ask questions upon one half of the subjects introduced into this volume on Organic Chemistry. Without intending any disrespect to the examiners of the University of London, or the Apothecaries' Society, we do not think that there is one among the whole body who could describe off-hand the symbolical differences between the *Oxalate* and *Oxamate of the Oxide of Methyle*, (p. 397), the composition of *chloro-phrenisic acid* (p. 511), or the construction of cinnamic acid from cinnamyle! The candidates for the diploma are therefore safe for the present.

"We agree with the author, that scientific chemistry has been too much neglected in this country; but it is questionable whether a taste for it can be revived by the introduction of a cumbrous nomenclature founded on hypothetical postulates—whether, indeed, the student will not be discouraged by finding the properties of substances drowned in symbols and formulæ. This appears to us to be a defect in the work before us. We turn over the pages, and we continually meet with rows of symbols and formulæ, as well as names, with which it would be a matter of despair to charge the memory. Dr. Prout long since entered a protest against the barbarism of Liebig and Wöhler's new terms, and he expresses himself by no means satisfied that the doctrines on which they are founded are satisfactorily established. The remarks on this subject made by another eminent English chemist (Brande) are so apposite that we shall here quote them. 'The nomenclature which, among the continental chemists, is creeping into organic chemistry cannot, I think, be too strongly protested against by all who are engaged in teaching chemistry. Neither arrangement nor nomenclature are of much importance to those who have advanced far into, and are familiar with, the more complicated details of the science; but to the student, the capricious and hypothetical terms which are in vogue are either unintelligible, or, what is worse, are calculated to mislead and embarrass.'"

In order to exemplify how much physiology and pathology are indebted to the researches of chemists, I beg to quote at length from the *Quarterly Review*, June, 1842 (pp. 99 and 121.)

"Professor Liebig applies the name of *metamorphosis* to those chemical actions in which a given compound, by the presence of a peculiar substance, is made to resolve itself into two or more compounds, *e. g.* sugar by presence of yeast, into alcohol and carbonic acid.

"Now, putrifying animal matters will cause sugar to ferment as well as yeast: explanation, the ferment or exciting body is invariably a substance in an active state of decomposition, and therefore its particles in motion; this motion is communicated to the particles of the body to be metamorphosed, and is sufficient to overturn their very unstable equilibrium, and to cause the formation of new and more stable compounds. Liebig explains the action of certain medicines and poisons on the human body in the same way—thus there are many medicines and poisons which produce a very marked effect without their elements taking a direct share in the changes which ensue; those bodies originate, as it were, in action, which is subsequently propagated from particle to particle; they are uniformly substances in a state of change, and appear to act on the blood as yeast does on a solution of sugar. In this class appear miasms, contagions, and the similar sausage poison of Würtemberg; the latter is an excellent example. Sausages, made in a peculiar way, are much used in that country; when ill-prepared, they

become poisonous, and their effects are invariably fatal : the patient gradually dries up into a sort of mummy, and after weeks or months of misery death closes the scene ; but there is no poisonous *substance* to be detected in the sausage. It is, according to Liebig, in a peculiar state of fermentation, which is not checked by the action of the stomach, and which, unfortunately, is communicated to the blood ; it never ceases until every part capable of solution has been destroyed, and death of course must follow. *Miasms* and *contagions* act on the very same principle, and the reason that all are not affected by them seems to be, that they require the presence of a peculiar compound in the blood, which enters into decomposition, and when the whole of this peculiar matter is destroyed, the disease disappears. If there be much such matter, the case is *severe* ; if little, the case is *mild* ; and apparently in many contagious diseases, *the peculiar decomposable matter, once destroyed, can never be renewed, so that these diseases occur but once.*"

Such is Professor Liebig's theory of poisoning and contagion—a theory which, though it comes to us recommended by the abilities of the first organic chemist of the age, and sanctioned by his anonymous but able reviewer in the *Quarterly*, can nevertheless be easily proved to rest on almost as many assumed as *proven* facts. Thus how can Liebig so positively assert that there is no poisonous substance in the fatal sausages ? True it is that no chemist has yet insulated such a substance ; but Liebig knows better than any one else, how profoundly concealed any particular animal principle may be, by being mixed with a great variety of other animal principles. Thus how long did sugar, in the blood of diabetic patients, elude the searches of chemists ? and yet they were looking for a principle with whose chemical qualities they were already accurately acquainted. How much more difficult of detection must the poisonous principle be, which exists in so compound a body as a Würtemberg sausage ? Besides, what chemist was ever sure that he was actually analyzing a poisonous sausage ? Here a special difficulty lies, for hitherto there has been discovered no *a priori* method of distinguishing a poisonous from a wholesome sausage until both have been eaten ; that is, too late for analysis. How long has the poisonous quality of ergot of rye been known ? and yet the principle to which its effects are owing, though often sought, has been only lately insulated.

It is obvious, therefore, that Professor Liebig's main example of his new pathological explanation is not by any means *proven*, and consequently it is unnecessary to follow him into the regions of fancy where he has been enticed by a specious and seductive analogy. Pathology will cease to be a science when the study of facts gives place to such reveries as the above-cited passage contains—relative to miasms, contagions, mild cases, severe cases, diseases occurring but once in life, &c. &c. &c. And yet I am sorry to say that one of our most distinguished lecturers, Dr. Watson, has, in his published lectures on the Practice of Physic (volume 2, p. 667, 1st edition), fully adopted these opinions.

In order to give the reader some idea of what Dr. Watson considers to be "*distinct conceptions*," and "*lights supplied by a theory*," I beg leave to quote from the doctor's lecture the following paragraphs :—

"Moreover, the light supplied by this theory gives distinctness to our conceptions respecting certain deviations from the regular course and type of these diseases ; which deviations are not uncommon.

"Thus the symptoms which precede and usher in the eruption are sometimes slow, halting, and irregular in their progress ; appear, and then recede,

and re-appear, so that we are in doubt what is about to happen, until at length the disease declares itself in its decided and authentic form.

"We may suppose this to depend upon some tardiness or interruption of the process whereby the virus is (to use the ancient term) concocted.

"Again, the series of combination of symptoms that mark the specific disease is sometimes, as I stated before, *incomplete*. We have the eruption of measles without the catarrhal symptoms; the sore throat without the rash of scarlet fever. And experience has found that, where the malady is thus imperfectly developed, the protection it confers against its own recurrence is also incomplete. To explain this double failure, we may reasonably infer a corresponding defect in the series of changes which the poison tends to produce in the mass of the blood.

"Glandular enlargements and chronic abscesses are frequent *sequelæ* of these exanthematous disorders. They may be considered to represent the dregs of the reproduced virus, which has been imperfectly eliminated from the system by the usual channels."

Very few observations are called for by these surmises of Dr. Watson; and certainly the learned doctor is rather guarded in his expressions, thus admitting that though he has given his adhesion to Liebig's theory, yet he seems to view the deductions to which it leads with considerable distrust. Indeed it is difficult to rest satisfied with reasoning which not only assumes gratuitously a certain thing to be the cause of a certain effect, but considers it a corroboration of that assumption, that whereas the effect is irregular in its progress, *we may suppose* the cause is so likewise.

It is still a greater triumph of logic to infer that, because a disease is incomplete, we gain anything towards the establishment of the true nature of its cause, by saying that we may reasonably infer a corresponding defect exists in the cause itself. To me the whole line of argument appears delusive; and as to the last paragraph, concerning glandular enlargement and chronic abscesses, it seems that Dr. Watson's conclusion involves a contradiction, for he attributes to the virus itself, and that by virtue of its chemical action, the production of several exanthematous diseases, each specifically distinct, and indeed as different from each other as an acid from an alkali, while to the dregs of the reproduced virus he attributes sequelæ—those glandular enlargements and chronic abscesses which so frequently appear after small pox, scarlatina, or the measles. According to this hypothesis, three different animal poisons, all acting chemically, produce at first three different diseases, and at last the same disease. With regard to this hypothesis, I may further remark, that when a brewer takes a certain quantity of sweet wort, puts it in a vessel, and adds a given portion of yeast* to it, he knows that if he simultaneously fills in the same way fifty similar vessels, the process of fermentation will produce in each thirty times as much yeast as was originally added to the wort. But when the virus of small pox is introduced into the blood of fifty individuals, is a multiplication of the small pox matter thus proportioned to the quantity of blood in each? It certainly is not; a *fact* conceded by the supporters of Liebig's hypothesis, but which they try to evade by saying that the particles of the blood which are susceptible of this particular decomposition and metamorphosis exist in different proportions in different individuals.

* We are glad to find Dr. Watson adhering to the old spelling of this word. He spells it as De Foe spells it in his *Robinson Crusoe*; this authority is probably as good as any the writer in the *Quarterly Review* could bring forward in support of his *yeast*.

This method of ratiocination is as inconclusive as it is novel, and may be aptly termed, arguing not *in* but *outside* of a circle.

The following quotation, taken from the *Provincial Medical Journal*, contains a condensed but very accurate analysis of Liebig's theory of heat, and the pathological inferences which necessarily appear to flow from it :—

“The carbon and hydrogen of food, in being converted by oxygen into carbonic acid and water, must give out as much heat as if they were burned in the open air. The only difference is, that this heat is spread over unequal spaces of time; but the actual amount is always the same. The temperature of the human body is the same in the torrid as in the frigid zone. But as the body may be considered in the light of a heated vessel, which cools with an accelerated rapidity the colder the surrounding medium, it is obvious that the fuel necessary to retain its heat must vary in different climates. Thus, less heat is necessary in Palermo, where the temperature of the air is that of the human body, than in the polar regions, where it is about 90° lower. In the animal body, the food is the fuel; and, by a proper supply of oxygen, we obtain the food given out during its combustion in winter. When we take exercise in a cold atmosphere, we respire a greater amount of oxygen, which implies a more abundant supply of carbon in the food; and, by taking this food, we form the most efficient protection against the cold. A starving man is soon frozen to death: *and every one knows that the animals of prey of the arctic regions are far more voracious than those of the torrid zone.** Our clothing is merely an equivalent for food; and the more warmly we are clothed, the less food we require. Were we to go destitute of clothes like certain savage tribes—or if, in hunting or fishing, we were exposed to the same degree of cold as the Samoyedes—we could with ease consume 10lbs. of flesh, and, perhaps, a dozen tallow candles into the bargain, as warmly clad travellers have related with astonishment of those people. Then could we take the same quantity of brandy or blubber of fish without bad effects, and learn to appreciate the delicacy of train oil.

“We thus perceive an explanation of the apparently anomalous habits of different nations. The macaroni of the Italian, and the train oil of the Greenlander and the Russian, are not adventitious freaks of taste, but necessary articles fitted to administer to their comfort in the climates in which they have been born. The colder the region, the more combustible must the food be.”

It is, I must confess, quite new to me that our clothing is merely an equivalent for food, and the more warmly we are clothed the less food we require. Take the well clad and warmly clothed country squire, and compare the quantity of food he devours with that which is consumed by his ragged

* I cannot guess how *every body* comes to know all this; for my own part, I think it may be maintained that a Bengal tiger, or Cape hyena, requires, in proportion to its size, quite as abundant *rations* as any of the arctic carnivora; and as to the vultures of Hindostan and Persia, where on earth, in air, or in water, can be found such gluttons? Neither do I think that any one (not to say *every body*) would be prudent in counting on the abstinence of a shark, even within the tropics! Although religious ordinances prevent the Hindoos from eating beef, yet both they and the Arabs occasionally devour mutton in astonishing quantities. Those who ride over the Pampas, in South America, at the rate of 100 miles a day, exposed to a burning sun, subsist entirely on boiled beef and water, without a particle of vegetable food of any kind, and yet they attain to an extraordinary *condition*, and capability of enduring violent and long continued exertion. Liebig's theory must be very ductile, if it can explain how it happens that an exclusively animal diet agrees with man quite as well at the equator as within the arctic circle.

labourers, and it may be asserted that the balance will be as much in favour of the squire's food as of his raiment. The voracious Samoyedes referred to, however barbarous in their manners, are an extraordinarily warmly clothed race, and the semi-putrid fat and blubber of whales agrees with the stomach of the Laplander as well in the heat of summer as in winter. In the arctic and cold regions of the earth man is driven by necessity to subsist on animal food, which is supplied to him by the unfrozen depths of the ocean, for in those inhospitable regions vegetable life is almost a stranger, and therefore it is that the Laplander, the Greenlander, and the Samoyede subsist almost exclusively on animal food. In the expeditions of Franklin, Parry, and Ross, our countrymen braved all the rigours of an arctic winter on the same food which they were in the habit of consuming in milder climates; and if it be true, as stated in the above passage, that in the animal body the food is the fuel, and, by a proper supply of food, we obtain the oxygen given out by its combustion in winter; if this be true, it is strange that there is no record of its being found necessary to give our sailors more food during the extreme cold than at other periods.

Facts are wholly inconsistent with many of Liebig's allegations. All hunting tribes of mankind, whether in northern, temperate, or tropical regions, subsist chiefly on animal food. This is true of the North and South American Indians, and it is true of the Hottentots, and indeed our travellers relate prodigies of gluttony enacted by the latter; for when, after a long fast, they suddenly obtain abundance of game, they will sit up the whole night occupied in cooking and devouring steak after steak unaccompanied by a morsel of vegetable food, and at such times, so indefatigable are they in the business of eating, that the party which over night had tightened their famine girdles to the last hole, have enormously distended abdomens on the following morning,—this, too, in the heat of Africa, where certainly no additional fuel was required for supporting the animal temperature. If Liebig's theory be correct, that animal food is peculiarly adapted to cold climates, how comes it that the most voracious carnivorous animals abound in the hottest regions of the earth. The Bengal tiger, and the African lion, and the boa constrictor of South America, together with alligators and crocodiles of the Nile, the Ganges, and the Oronooko, all subsist solely upon animal food; and, on the other hand, among the whale tribe it is observable that they abound in every variety of oceanic temperature, where the appropriate animal food occurs, and the same observation applies to fishes in general. Take the antelope and the gazelle of Africa, which would shiver from cold during the warmth of an English summer, and compare them with the reindeer, that bears with impunity, and that for months together, a temperature far below zero, and how can we explain the difference by Liebig's theory, for they both subsist on vegetable food? Facts such as these are not merely irreconcilable with, but destructive of, that theory.

I would not be understood here as wishing to depreciate any department of human knowledge. Far be it from me. Besides, the attempt would be useless. But I am anxious that you should concentrate all your energies on the proper objects of medical pursuit, and devote the largest share of your attention to those requirements which will render you good practitioners. I have seen students led astray by false notions, wasting half of the time which should be spent in hospital and by the sick bed, in wandering through the fields on botanical excursions, or working in the laboratory, engaged in the solution of some unimportant problem. Now this is not what will teach

them to relieve suffering and cure disease. When I look round me, and behold so many young gentlemen entering upon an honourable and important profession, I feel that my responsibility is great. I consider you all as instruments of good or evil, and cannot help being conscious that I should be guilty of a great crime, did I not use every means in my power to render you able and efficient practitioners. The teacher of clinical medicine, gentlemen, occupies in every nation a post of heavy responsibility. But when he happens to preside over the medical education of those who resort to the wards of a metropolitan hospital—when the metropolis is a British one, and the hospital destined to send forth annually practitioners to every quarter of the globe—to North and South America, to New Holland, to the Cape of Good Hope, to the East and West Indies, and the countless isles which, in either hemisphere, are visited by the British flag, then indeed does that teacher become himself an instrument of good or evil to an extent which it is fearful to contemplate.

He who gives instruction to a clinical class in Berlin, Stockholm, Vienna, or Paris, has much to answer for, if he discharge not his duties with zeal and diligence. Yet if he fails to make his pupils good practitioners, their errors, however deplorable, are circumscribed within comparatively narrow bounds, and limited in a great degree to their own countrymen. But the British teacher sits in the centre of a circle far wider than Sweden or Prussia, Austria or France; his pupils are to be met with practising in every climate, exercising their art in almost every habitable region of the globe, and dispensing the blessings of health to all races of mankind:—to the hardy white settlers of Canada, the aboriginal red-skins of North America, the Negroes of Jamaica, the Hottentots and Caffres of Africa, and the countless tribes of Hindostan.

In truth, gentlemen, the British teacher of practical medicine exercises an influence without parallel in importance and extent, and his opportunities of benefitting or injuring his fellow-men are incalculably great. If he neglect his duty, if he teach erroneously, his negligence and his errors in practice are multiplied indefinitely, by means of those whom he ought to have better instructed; the scene of his guilt—for it deserves no better name—becomes fearfully enlarged, for there is no country so remote that it may not contribute victims to the incapacity of his pupils. But if, on the contrary, he works with zeal and diligence; if he labours conscientiously and perseveringly in performing the important task he has undertaken, a compensation awaits him to which scarcely any member of any profession can attain. Can any reward exceed in value the reflection that he has assisted, materially assisted, in imparting practical knowledge to multitudes of enterprising young men, who, year after year, leave our hospitals to engage in the sacred duties of the medical profession, throughout the world? Is it not a high privilege to be enabled to combat death and conquer disease, as it were by proxy, in so many different localities? Can man enjoy a purer, prouder, more gratifying reflection? When I hear that a favourite pupil who has acquired a solid stock of practical knowledge in this hospital, has settled in any particular town or district, I cannot help feeling, on the part of my colleagues and myself, that we have been the humble means of conferring a blessing on the people entrusted to his care; and I cannot refrain from congratulating myself upon holding a situation which multiplies a thousand fold our efforts to be useful, and enables us to stretch forth our hands to heal men of all nations and languages. The hero and the despot may extend a sovereignty over distant regions—may exert an unlimited control over millions of vassals—may dispense honours and rewards, or inflict punishment and death: they

may, like Alexander, grieve at the narrow limits of a conquered world, and sigh for other scenes of glory, but they cannot chase away pain ; they cannot bid the burning thirst to cease, or give back repose to the sleepless ; they cannot impart feeling or motion to the paralysed, or sight to the blind ; and, above all, they cannot imitate that almost godlike function of the healing art, by which man is enabled to recall to his fellow-man reason long banished, and restore to society the hapless victim of insanity.

Gentlemen, the profession we have embraced is the noblest that can engage the mind of man,—when diligently cultivated and conscientiously practised ; but it requires great and persevering industry to enable the student to master all the difficulties that beset his path. Feeling this strongly, I have trespassed perhaps too long on your attention ; but I thought it my duty to lay before you, as fully as I could, those views which I deemed best calculated for your adoption in the acquirement of practical knowledge.

LECTURE III.

ON THE PROPER MODE OF STUDYING PHYSIOLOGY AND MORBID ANATOMY.

It is quite evident that a knowledge of the functions and structure of the body in health, is essential to him who undertakes the treatment of disease, and hence physiology has always occupied the attention of physicians. Physiology, however, may be studied in very different ways, and with very different objects, and, until lately, all those who were engaged in the cultivation of this fascinating science, not contented with observing the state of the different parts and tissues during health, the nature and quality of the secretions, the mechanism and operation of the different organs, sought to ascend from a knowledge of effects to an investigation of causes, and after they had classified the more obvious phenomena of living bodies, endeavour to ascertain, if not the very principle of life, at least those motions and causes of motion which result immediately from the action of the living principle. Having thus, as they conceived, obtained a more accurate knowledge of the conditions of health, they proceeded to form general explanations of the causes of disease, and frame general rules for their removal. This method, apparently so philosophical, and possessing so many attractions from the generality and simplicity of its application, has more than any other circumstance, contributed to retard the progress of medicine.

Gentlemen, this is not only an ancient, it is also a modern evil. We live among systems. It is true that the practice founded on the mechanical, mathematical, chemical and humoral physiologies, has been long since abandoned; but the destructive system of Brown has but lately quitted the stage, where its place is occupied on the Continent by those of Broussais and Rasori, and in Great Britain by the system which derives all diseases either from derangement of the digestive function, or from inflammation.

Physiology does not legitimately embrace the study of vital actions, but merely aims at ascertaining and arranging their effects. The important facts, which its study discloses, are perhaps infinite in number. As long as we confine ourselves to these, we advance at every step, and all is clear and intelligible; but the moment we attempt to inquire into the causes and modes of vital action, we begin to retrograde, and all becomes hypothesis and confusion. Thus, an examination of the organ of sight, discovers a wonderful and beautiful optical arrangement, calculated to form on the retina a picture of external objects, exact both in its colouring and outline. The physiologist, examining with attention the different parts of the eye, and the laws of their respective refractions, investigates the means by which distinct vision is secured at different distances; he compares the human eye and its appendages with that of animals which live in water, those which soar into the highest regions of the atmosphere, and those which burrow under ground. He considers the eye of the mole—feeble, but protected against injuries likely to be encountered in carrying on its subterraneous works; of the eagle—which, poised high in

mid-air, selects its victim from the distant pasture; of the fly—whose microscopic organ, with a range of vision scarcely exceeding the limits of contact, distinguishes objects the most minute; and in all, he finds variations in the optical instruments at once curious and intelligible. But when he endeavours to advance further in his inquiry, and tries to explain how an image painted on the retina produces vision, whether by the means of undulations arising from the rays of light and propagated along the optic nerve to the brain, or whether because the retina is a nervous expansion, highly organised and framed, so as to feel the coloured image painted on it; he is at once arrested in his progress by the barrier which is everywhere interposed between physical and vital actions—between the mechanism of the organs of sense and the mode in which they produce ideas between body and mind.

But has he, therefore, gained no real knowledge applicable to practical purposes, or has his time been merely spent in a pleasing but useless study? By no means. Being acquainted with the mechanism and arrangement of the optical instrument, he is often enabled to remedy its accidental derangements. By means of a concave glass he corrects a too speedy, by a convex a too tardy, concentration of the rays of light. When the crystalline lens becomes opaque, his knowledge of its connexions, nature, and position enables him either to remove it altogether, displace it from the axis of vision, or to promote its absorption, and, in order to effect the latter purpose, he mechanically irritates it, knowing by experience, that after such an irritation, the process of absorption commences, although he is quite ignorant of the connexion between mechanical irritation and this vital process. He who inquires into the physiology of the brain and spinal marrow can never discover the nature of nervous influence, or the manner in which pressure on these organs destroys, or irritation deranges, the motions of the voluntary muscles; and yet the entire treatment of cerebral or spinal diseases, whether spontaneous, or from the effects of injury, is grounded on a knowledge of this physical fact: without it, we could not estimate the value or effects of morbid changes in the brain or spinal marrow. On this reposes the rationale of the treatment of all convulsive, paralytic, and apoplectic affections.

Although we know not the manner in which the eighth pair of nerves superintends the respiratory process, although we understand not how the phrenic nerves influence the motion of the diaphragm, yet a knowledge of these facts led to a means of relief for spasmodic asthma, and to the recovery of persons apparently asphyxiated, by means of the Galvanic stimulus passed along the course of these nerves. Knowing that some of the nerves, distributed to the face, are destined for sensation, while others serve for muscular motion, in cases of *tic-douloureux* we divide the sentient and not the motive nerves. In these, and a thousand other instances, physical physiology supplies us with information at once interesting and practical; it would be still easier to prove, as in the cases of Brown and Broussais, that vital physiology, by involving us in the discussion of subjects beyond the powers of our reason, never fails to entangle its votaries in a labyrinth, amidst whose mazes they move without progressing, and consume in idle speculations that time and labour they ought to spend in the acquisition of useful knowledge. But I trust the period has at length arrived when this error will be avoided; for, on the whole, it must be confessed that, in consequence of a wrong method of studying, and a misconception of the true objects of

physiology, this science has in many instances retarded the progress of practical medicine.

Let us next consider the connexion of morbid anatomy with practical medicine. Many have mistaken the end and object of morbid anatomy, and there are not wanting some who even deny its utility, while others again, in their zeal for its improvement, have endeavoured to extend its limits so as to make it comprehend and embrace in the explanations it affords, all the phenomena of disease. It is not easy to determine which of these parties has most injured the cause of practical medicine. Morbid anatomy comprehends not merely decided and permanent structural alteration, but embraces, so far as they are capable of being detected, even temporary physical changes in internal organs. In order justly to estimate its importance, we should recollect that the first alteration in the texture of a part is not the cause but the consequence of disease, for in every healthy organ the texture is natural, and as every change of texture is produced in consequence of derangement in the vital action of the vascular system of the part, it is obvious that structural alteration must in the first instance be always produced by functional derangement. Thus the physical alterations which attend external inflammation, the tumefaction, the heat, the redness are not the causes but the consequences of disease. But in thus reducing them to the rank of symptoms, do we diminish their importance? Certainly not. For being immediately connected, as effects, *with* the primary cause, they prove the most useful of all symptoms, in enabling us to ascertain the seat and progress of diseased action. In this respect they possess a manifest advantage over the general or constitutional symptoms. Thus, in cases of spontaneous gangrene, phlegmonous inflammation, or erysipelas, what practitioner would be contented to draw his indications from the general symptoms, disregarding the appearance of the affected part? And yet this is exactly what those persons do, who refuse the aid of morbid anatomy in the treatment of internal disease.

In external diseases, most of the physical changes in the affected part can be at once recognised; their diagnosis is therefore comparatively easy, and their treatment well established. In internal diseases, the case is widely different, the physical alterations are here beyond the cognizance of our senses; and, in order to ascertain their nature and situation, we must carefully compare the morbid appearances of internal organs, as revealed to us by dissection, with the symptoms during life.

Although alteration of structure is in the first instance produced by a disease in the vital action of the part, yet this structural alteration may itself become a new cause of mischief. Thus the vascular system of the lungs, from some unknown cause, assumes such a change of action as produces a deposition into the pulmonary texture of various fluid and solid products, by which the entrance of the air into its vesicles is prevented, and the respiratory function, one of the most important of the body, is thus considerably deranged. Again, whatever be the original vital derangement which causes scirrhus of the pylorus, the obstruction thus formed is a secondary cause of new and important symptoms.

Another consideration, which enhances the value of morbid anatomy, arises from the fact, that when diseased action fixes itself in any part of the body, whether external or internal, and there gives rise to physical alterations, experience teaches us that the progress of the disease may be often arrested by removing its effects. Thus, to recur to the example of external inflammation, the redness, the swelling, the heat of the part, are but symptoms, and

yet we find great benefit from the applications of remedies capable of diminishing them: hence we leech, and apply cold lotions, &c.

From all these considerations it is evident, that whenever disease is attended with either a temporary or a permanent alteration in the tissue of an internal organ, it will be of the greatest practical importance to ascertain the nature and extent of that alteration, and the progress of practical medicine will be exactly proportioned to the accuracy with which this can be accomplished. Thus, how much has the treatment of pectoral diseases been improved by the application of auscultation and percussion,—means which are only useful by enabling us to ascertain the physical alterations induced by the disease, or, in other words, the morbid anatomy of the affected organ. Without their aid, how trace the progress and follow the increase or diminution of pulmonary inflammation?—how demonstrate the existence of dropsical or pleuritic effusion within the chest?—how detect latent pneumonia?—how distinguish with certainty pleurodyne from pleurisy? I could prove the utter impossibility of distinguishing many cases of bronchitic from tubercular phthisis without their assistance. I might refer to chronic emphysema of the pulmonary tissue, a disease of great importance, but actually unknown before the time of Laennec, who first accurately described it in the dead body; indeed, before the application of percussion and auscultation, a perfect knowledge of this derangement of the pulmonary structure in the dead body would not have assisted our diagnosis, for how recognise it during life? I might bring forward dilatation of the bronchial tubes, another disease wholly unknown before Laennec's time, and which, before his discovery, could not be recognised by the common method of observation. I might enlarge on the great utility of attending to the changes which take place within the chest in measles and scarlet fever; but the benefit resulting from an accurate acquaintance with the morbid anatomy of the thoracic cavity is now so generally acknowledged, that I shall rather choose my illustrations from other classes of diseases.

Nosologists, until very lately, were agreed in attributing considerable frequency to those cases of apoplexy and paralysis which arise from serous effusion in the brain, or from a mere functional inaction or debility of the cerebral and nervous systems. This opinion was founded partly on speculative grounds, and partly on inadequate and imperfect post-mortem examinations, and in practical books, the symptoms supposed to announce sanguineous, serous, and nervous apoplexy, were dogmatically laid down. What was the consequence? Most disastrous, as I have had occasion to witness in some parts of the continent, where the elderly practitioners still adhered to the practice founded on this false pathology. What can be more melancholy than to see time wasted or misemployed in the exhibition of diuretics, given to promote absorption of serum effused into the brain, or of strong exciting remedies, such as *arnica*, camphor, &c., to overcome the nervous debility, in cases where copious depletion by the lancet and purgatives were urgently necessary. I do not deny that in some rare cases serous effusion into the brain is the cause of death from apoplexy. I have seen such an event supervene in chronic dropsy, but there the termination was very sudden, and the previous history left no doubt as to the cause; but in the majority of the cases formerly treated as serous or nervous apoplexy, a more careful examination would have detected marks of vascular excitement or local inflammation, a subject I shall treat at large when on the pathology of the brain. A similar error in morbid anatomy led to a similarly erroneous

practice in the treatment of hydrocephalus, and many cases of general and local dropsy. The effusion occupied the sole attention of pathologists; the marks of preceding vascular excitement or inflammation escaped their notice.

Time will not permit me to enlarge upon the light which morbid anatomy, rationally pursued, has shed upon diseases of the brain. It is sufficient to remark, that some of the most important modifications of inflammation in that organ have been only lately discovered, and it is only lately that a minute and extensive examination of the different changes the brain undergoes in disease, has begun to introduce a certain degree of regularity and precision into a department where all before was confusion and inaccuracy.

Examples of the utility of morbid anatomy might be brought forward without number:—the discovery of local inflammation being at times the cause of a disease in most of its symptoms resembling common ague; the use of the lancet in the cold stage of ague, a practice which may be advantageously resorted to in cases where each return of the fit is accompanied by a recurrence of inflammation in a vital organ, as the lungs or brain; the connexion between inflammation of the mucous membrane of the stomach, and some of those symptoms of fever formerly attributed to mere debility; the influence of cerebral inflammation and congestion, in producing the symptoms formerly vaguely denominated typhus; the low character which fever assumes when accompanied by pneumonia (and that, too, often latent); the symptoms which are produced by follicular ulceration of the intestines, which so frequently occurs in the course of fever; the diagnosis between the pain produced by neuralgia of the abdominal nerves, and that resulting from structural diseases of the intestinal canal; a more accurate knowledge of the state of the mucous membrane in the diarrhoea of phthisis, and in intestinal tympanitis; the numerous improvements in the treatment of diseases of the ear, which followed Itard's investigations concerning the morbid anatomy of that organ;—these and many other discoveries, all replete with practical advantages, are the results of the attention of our contemporaries to morbid anatomy. And, were I to appeal to the records of surgery, I might bring forward examples, if not more important, perhaps more evident and striking; for the invention and success of most capital operations depend on a perfect knowledge of the structural derangements, the removal or cure of which is attempted. Of this, examples suggest themselves on every side, but none is more striking than the one devised by Dupuytren for the cure of artificial anus, the most disgusting and loathsome malady to which human nature is subject, and one deemed altogether incurable, until that excellent surgeon, by a combination of profound pathological and physiological knowledge, succeeded in planning and executing an operation, that was alone sufficient to immortalize his name.

The study of morbid anatomy, however, is attended with no ordinary difficulties, and, when imperfectly understood, is liable to lead to erroneous results, for it requires much candour, much patience, and that experience which can be only acquired by long continued practice, to enable us to judge concerning diseased appearances. The power of accurately discriminating in the dead body the traces of disease, cannot be suddenly acquired, and so numerous are the various errors to which superficial observers are liable, that much injury has thus resulted to medical science, diseased appearances being in some cases overlooked, and in others recorded where they did not exist. Those who are aware how often the congestion which frequently takes place immediately before or after death, in the pulmonary tissue, and in the

mucous membranes of the lungs and alimentary canal, alters the physical properties of these parts, so as almost exactly to simulate the vestiges of inflammation, will understand how it happens that in investigations connected with the real or supposed diseases of these parts, facts have been marshalled against facts, and observations arranged against observations, until the path which promised simplicity and order, terminated in perplexity and confusion. Hence the doctrines of Broussais received so many corroborations, and appeared to rest upon numerous series of undoubted and well authenticated facts.

The morbid anatomist must of all things beware of seeing too much. He must avoid imposing on himself by everywhere seeing exactly what he expected to see, and above all things let him not always force himself to see something; for many diseases proceed to a fatal termination without having produced any evident morbid alteration.

When I come to treat of the pathology of the brain and nervous system, I shall have occasion to advert to errors which late authors have committed from too great an anxiety, on the one hand, to reduce to a certain and definite system the morbid appearances of the brain and spinal marrow, as connected with their diseases, and, on the other, to find, in every case where the cerebral or nervous functions had been diseased, lesions of structure to account for the symptoms. Thus, to cite one of numerous instances, I shall have occasion to prove that epilepsy and mania often commence suddenly and violently, without the existence of any organic alteration; and, indeed, that organic lesions are not necessarily connected with these formidable diseases, is sufficiently proved by the occasionally sudden manner in which they cease. Thus, a gentleman of great literary reputation was many years a patient of mine before his death, which happened in 1831, at the age of seventy. From the age of twenty-five to fifty-five he suffered from violent and frequently recurring fits of epilepsy; after having continued for thirty years, the disease ceased suddenly, without any assignable cause, and during the last fifteen years of his life, he had not a single fit. I shall have occasion to show you how fine-drawn and how ill-founded are the observations of those, who profess to account for every nervous disturbance during life by cerebral lesions; who profess to distinguish accurately, during life, inflammation and irritation of the arachnoid or dura mater, from irritation or inflammation of the brain itself, who maintain that one series of symptoms is produced by inflammation of the cortical, and another by inflammation of the medullary substance; who have strained their eyes to discover, and their veracity to impose upon us, proofs that inflammatory or other diseased states of certain portions of the brain invariably caused similar affections of certain mental functions. These errors of some, even of the most eminent French pathologists, it will be my duty to notice from time to time; but I am sorry to say that much more unpardonable errors and misstatements have found their way into English and Irish publications on the pathology of the brain, and which I shall be compelled to speak of hereafter.

Having made the preceding observations on the dangers which arise from an ill-directed application of the studies of physiology and morbid anatomy to the practice of medicine and surgery, I feel myself imperatively called on to present the other side of the question to your view, in exposing the still more dangerous doctrine advocated by those who depreciate the value of pathology and morbid anatomy, as only instructive after the death of the

patient—and even then as not unfrequently calculated rather to mislead than to advance the interests of practical medicine.*

It must be conceded that he who is only a physiologist cannot hope to cure disease, and that the more morbid anatomist will be often misled by post mortem appearances—if he have not attentively watched the progress of symptoms, and the effects of medicines during life; for, unless this be done, he will, as I have already said, often mistake secondary for primary lesions, will confound effects with their causes, and will refer to certain alterations of structure that which had originated in a functional disorder—a morbid state of parts very different from that which is observed after death. But when, to an accurate knowledge of physiology and morbid anatomy is joined an extensive observation of the progress of symptoms and the effects of therapeutical agents, how much more certain and satisfactory will be our practical decisions, and how much more likely our efforts to be attended with success, than if we merely studied disease at the bedside of the patient. In the latter case indeed we might become expert nosologists, be accurately acquainted with certain groups of symptoms, and even not unfrequently adopt the proper method of treatment. These symptoms, considered together, we would call by a certain name, and hand down to posterity this new acquisition of medical knowledge, perhaps clothed in the garb of a dead language, and invested with the false dignity of a learned tongue. But what have we really thus effected for posterity?—Our followers read our definitions of disease with an acquiescing admiration, and, sure of the efficacy of the remedies we have recommended, they go forth with an overweening confidence in quest of the group of symptoms we have described, and when they have met with them they look upon their task as already half accomplished, and promise a successful termination of the disease.

“Tell me the name of the disease,” was the motto of the nosologist, “and I will tell you the remedy;” but, gentlemen, I will engage to tell you the names of a hundred diseases, without your being able to name the proper method of treatment. I tell you a man has dropsy, his limbs are anasarcaous, water is accumulated in the peritoneal cavity, his urine is scanty, and his thirst increased. Will you, from this very excellent nosological definition, venture to prescribe for this case of dropsy? For the sake of the suffering patient and your own conscience, prescribe not on such data. And yet I regret to be obliged to say, that such a method of proceeding is by no means rare, nay, it is even a matter of daily occurrence. But this case of dropsy will not yield. Some other boasted specific hydragogue or diuretic is had recourse to; still the patient grows worse and worse, and finally dies, but his friends are not discontented with the medical attendant, who excuses himself by asserting that he has successively resorted to every remedy which has been recommended in dropsy; and in truth if you look over the list of medicines exhibited in rapid succession, you will probably find that his excuse is not unsupported by facts. But, gentlemen, these cases in which every thing has been tried are exactly those in which nothing has been tried, in which medicine has followed medicine, and each symptom of disease has indiscriminately been the object of attack, until death approaches with accelerated steps, and charitably closes a scene distressing to humanity, and disgraceful to the cause—I was going to say—of science; but who will venture to give so ennobling a name to this pseudo-practical knowledge, this worse than absolute ignorance?

* The dangers above enumerated may be almost all avoided by institutions such as the Dublin Pathological Society, founded in 1838, and by means of which, morbid specimens are exposed to an examination most likely to disclose their real nature.

Gentlemen, I am not combating phantoms ; I do not, Quixote-like, contend with imaginary giants ; no, gentlemen, what I have described exists, the picture I have drawn has many an original. But let us have done with this subject ; let us turn to the gratifying considerations of the progress which practical medicine is making under its parent sciences,—physiology and morbid anatomy.

The reason of man is now more fully employed than at any former period ; a vast store of mental power, a vast mass of mind is everywhere at work ; what formerly was vainly attempted by the labour of a few, is now easily accomplished by the exertions of the many. The empire of reason, extending from the old to the new world, from Europe to our Antipodes, has encircled the earth : the sun never sets upon her dominions,—individuals must rest, but the collective intelligence of the species never sleeps ; at the moment one nation, wearied by the toils of day, welcomes the shades of night, and lies down to seek repose, another arises to hail the light of morning, and, refreshed, speeds the noble work of science !

All inquirers commence, as it were, at the same point, as the labours of their predecessors are equally at the disposal of all, and consequently it is not surprising we should often find them arriving together at the same end ; thence the number of simultaneous discoveries of the same fact now so common. It is not unusual to find the publications of France, Germany, Italy, and England announcing the same discovery, and each zealously claiming for their respective countrymen an honour which belongs equally to all. I am sorry to say that, with some splendid exceptions, this interesting and innocent controversy has been carried on by other countries, while Ireland has put in no claim for a share of the literary honours awarded to the efforts of industry or genius. But, gentlemen, this state of inaction, this state of mental torpor, is daily ceasing, and the time has passed away when we could not point out among our brethren any who had advanced the boundaries of the medical sciences, and thus promoted the interests of humanity.

Now we can enumerate many whose names form a catalogue the subject of congratulation for the present, of happy augury for the future ; for cold must be the breast of him who will not hail with joy every symptom of our country's literary regeneration,—dead the feelings which are not elated at the boon conferred on our species by every advance made by those who devote themselves to the grand, the noble pursuit of relieving the suffering, of healing the diseased. But time bids me stop ; I shall, therefore, conclude by observing that the attention lately devoted to the distinctions between real and pseudo-morbid appearances, the diligent cultivation of morbid anatomy by men not the slaves of pre-conceived opinions, the abandonment of all systems whose baseless fabric rests on the phantoms of vital physiology, the importance now justly attached to medical statistics, to the study of endemic and epidemic maladies, to the operation of morbid poisons : these, and various other circumstances, give us reason to hope that the progress of the human mind in investigating the means of preventing and curing diseases, will not be less rapid than it has been in the other departments of knowledge. And thus it will be proved that if man has passions which impel him to the destruction of man, if he be the only animal who, despising his natural weapons for attack or defence, has devised new means of destruction,—he is also the only animal who has the desire or the power to relieve the sufferings of his fellow-creatures ; the only animal in whom the co-existence of reason and benevolence attests a moral as well as an intellectual superiority.

LECTURE IV.

THE PULSE.

THE posture of the body has a very considerable influence on the frequency of the pulse, even in healthy persons, and this influence being still more marked in disease, it has been long a matter of common observation, that the pulse is more frequent in the erect than in the horizontal posture. This subject, not having been investigated with the accuracy it merits, I have made it the object of numerous experiments, the results of which appear in some respects novel, and not devoid of practical utility. In healthy persons the pulse in the erect posture is more frequent than in the horizontal, by from six to fifteen beats in the minute. If the pulse is but sixty, the difference is generally not more than six or eight, and this difference increases with the frequency of the pulse at the time of the experiment: thus if it has been raised to 90 or 100 by moderate exercise, it is not unusual to find the difference twenty or thirty.

As the muscular exertion necessary to keep the body in the erect posture might be considered as the cause of this greater frequency, it became necessary to contrive means of placing the body in any desired posture, without the necessity of muscular exertion on the part of the subject of the experiment; this was effected, and it was found that when the posture was changed by means of such a contrivance, the difference between the frequency in the horizontal and the erect posture was not less than when muscular exertion was used.

I now anticipated, that if the body was placed with the head down and the feet up, a still further retardation of the pulse would be produced; it was, indeed, natural to conclude from the preceding experiments, that posture alone was the cause of the retardation observed in the body when placed horizontally, and, consequently, that this effect would be augmented on still more depressing the head, and that the maximum of retardation would occur in the inverted position.

I was inclined still more to this opinion, from considering that in the inverted position the return of blood from the brain being opposed by the force of gravity, that organ would necessarily become the seat of sanguineous congestion, to a degree capable of producing cerebral compression and consequent retardation of the pulse; for I cannot subscribe to the opinion of Dr. Abercrombie and others, who maintain that the quantity of blood circulating within the cranium never varies in quantity*; here, however, as it not unfrequently happens, preconceived ideas were not found to accord with expe-

* Dr. Burrowes of London has recently tested by experiment the truth of Abercrombie's assertion, and he has satisfactorily proved that the quantity of the blood circulating within the brain *does* vary under different circumstances, and is especially influenced by the position of the body. I must refer to his excellent book on the "Cerebral Circulation," published in 1846, for an account of the experiments he performed, and their results.

rimment, and no further retardation of the pulse was thus effected, neither, on the other hand, was it accelerated beyond the number observed in the horizontal position. This fact I verified by experiments made in the presence of Dr. Jacob, Dr. Apjohn, and Mr. Harris. It appears very singular, that a posture so unnatural as the inverted should produce no effect on the frequency of the pulse, as compared with the horizontal, while a change from the latter to the erect, both natural postures, is attended with so great an acceleration. In the inverted posture, although the frequency of the pulse is not altered, its strength is diminished, and often very considerably; it is not unusual, too, for it to become irregular, a fact that may be explained by the greater weight of the blood pressing back on the aortic valves, and thus, necessarily opposing an unusual impediment to its egress from the left ventricle. The pulse is also evidently stronger in the horizontal than in the erect posture, consequently its *maximum of strength and minimum of frequency* are attained together. This may, I conceive, account more satisfactorily than has been hitherto done, for the relief obtained by placing patients in the horizontal posture, in order to avoid syncope, as, for instance, that produced by venesection. In all other diseases* in which I have investigated this subject, I have found a difference between the frequency of the pulse in the erect, sitting, and horizontal postures; *but in six cases of hypertrophy with dilatation of the heart, no such difference was perceptible, although all these patients, at the time of my making the experiment, were in a debilitated state*, which, it will just now appear, is that in which the changes induced by position are the most remarkable. In four of these cases the existence of hypertrophy with dilatation has been ascertained by post mortem examination, and of the other two, a man and a woman, at present in the Meath Hospital, there can be no doubt of the state of the heart in one of them, while in the other the existence of hypertrophy is more than probable. For the sake of accuracy I shall give the precise results of the experiments I made before you on these six patients; where two numbers follow each other, they denote successive quarters of a minute, that being first which immediately followed the change of posture.

DOYLE, Monday,	Pulse in Horizontal position,	72
	—— Sitting,	72
	—— Standing,	80
Tuesday,	—— Horizontal,	72
	—— Sitting,	80, 72
	—— Standing,	80, 72
Wednesday,	—— Horizontal,	72
	—— Sitting,	72
	—— Standing,	72
MALONE,	Pulse in Horizontal position,	60
	—— Sitting,	76, 60
	—— Standing,	76, 60

In both of these cases, although the pulse during the first quarter of a minute after the change of posture rose in frequency, yet in the next it fell to the previous standard; indeed, it may be remarked that the greatest frequency, *where muscular exertion has been used* to assume the sitting or erect posture, is observable in the first ten seconds which follow that exertion,

* Owing to the kindness of Mr. Sohan, I had an opportunity of examining the pulse of a lady, aged 50, of strong constitution, in whom, since her childhood, the frequency of the pulse has never exceeded 38 in a minute. It is the same in all postures, and its frequency is not altered by the accession of febrile or inflammatory affections. There is no suspicion of any disease of the heart.

both in health, and still more remarkably in disease; and consequently the first quarter, or even half of a minute, should be rejected where we wish to ascertain the permanent alteration thus produced.

In two other cases, *Gorman* and *Reilly*, in whom the hypertrophy and dilatation had attained to a great size, even this acceleration during the first few seconds was scarcely perceptible, and the pulse almost at once resumed its former standard. The same observation applies to the two patients at present (5th July) in the hospital; in the man the pulse is 76, both when he is lying or sitting; in the woman, in whom certainly extreme hypertrophy with dilatation exists, the pulse is constantly above 100, and the same in both postures. They have been both long ill, and are much debilitated by the effects of the disease, and of the remedies employed to mitigate its violence.

In these cases of diseased heart I have already remarked the hypertrophy and dilatation were very great, and in five of them certainly, and in the sixth probably, the left ventricle was involved in the disease; and I am inclined to think, that this permanence of the pulse in all positions of the body will be only found to exist in such cases, and not in those where the hypertrophy and dilatation are less considerable, and consequently the diagnosis more obscure. This circumstance may, it is true, detract from the value of the observations *so far as regards diagnosis*, but certainly does not diminish its physiological interest. I may observe, too, that should future observations prove that hypertrophy of the heart is not always attended by this permanency of the pulse, and I believe it is not, yet its occurrence in so many cases of that affection is nevertheless an interesting fact. In pursuing this inquiry, it will be necessary to compare the effects of posture in hypertrophy with, and without disease of the valves of the heart and aorta. It would be premature to inquire into the cause of this phenomenon, but it immediately suggests itself to the mind, that it depends on the increased strength and energy of the left ventricle when in a state of hypertrophy, and which, in a great measure, place its contractions, as it were, beyond the influence of these causes which, in other diseases, attended with debility, and even in many persons in health, enable a change of posture to produce so remarkable an alteration in the frequency of the pulse. I shall now give the results of a great number of observations, made both in hospital and in private practice, upon this effect of change of posture on the frequency of pulse in other diseases.

1st. That the greatest difference occurs in patients labouring under fever, or in a debilitated state in consequence of fever or any other cause. It may amount to 30, 40, or even 50, between the horizontal and erect postures.

2dly. That this difference decreases after the first quarter of an hour in most cases, but always remains considerable as long as the same position is observed.

3dly. That in persons not much debilitated the difference is much less than that stated above, and often does not amount to more than 10.

4thly. That when the patient lies down, the pulse rapidly falls to its former standard.

5thly. That in some the increase in frequency is greater between the horizontal and sitting posture than between the latter and the erect; while in others the contrary takes place, so that generally the frequency in the sitting posture may be taken as a *mean*.

6thly. In persons convalescent from fever or acute diseases, I find it is extremely useful to the physician to ascertain the comparative frequency of

the pulse in the horizontal and in the erect position. The greater the difference, the greater is the debility of the patient, *and consequently the more guarded must his medical attendant be in allowing him to sit up for any length of time*, particularly if the pulse on his lying down does not resume its usual degree of frequency.

In the case of a young man named St. Leger, who was lately a patient at Sir Patrick Dun's Hospital, the variation of the pulse in different positions of the body was very remarkable. He was just recovering from fever, and exhibited a state of the pulse which is not unfrequently observed under similar circumstances. During his convalescence the pulse went on declining in frequency, until it sank to thirty-six in the minute. When I made him sit up in bed, his pulse began to rise rapidly, and, in the space of a minute, was at sixty-four. When he stood up, it became much quicker, *but grew so weak and indistinct that it could not be felt at the wrist*. On applying a stethoscope over the region of the heart, I found that its pulsations amounted to 112 in the minute. Here is a very remarkable difference of pulse depending entirely on change of position. With respect to the number of respirations in this young man, I found that when lying down they were only fourteen, but when he stood up they were thirty. This is a very curious fact, and one which I have not before observed.

In this case, the pulse was very little more than in the proportion of two and a half to one, as compared with respiration, whereas it ought to be as four to one. We had another case at the same time in the hospital, in which the pulse was 84, and the respiration 42 in a minute; and a third case in which the pulse was 120, while the respiration was only twelve. I have myself seen one case in which the pulse was 60, and the respiration 50.

This variation in the relations which the pulse and respiration bear to each other, is principally observed in fever and pulmonary disease. I am at present attending a lady in fever, whose pulse was 120, and respiration 26, until within the last twenty-four hours, since which, respiration has increased to 40, but the pulse has sunk to 86. Now, is this lady's state improved? Would you prefer having her in her present or past condition? For my part, I will say that in such a case I would rather have the pulse than the respiration accelerated. A quickening of the breathing in fever, without any particular lesion of the thoracic viscera, is always a proof that the muscular powers of organic life have been injured; that the diaphragm and respiratory muscles are impeded in their functions; and that the case is of a dangerous character.

I do not know, gentlemen, any point on which accurate observations are more wanting than on the proportion between the pulse and respiration in various states of the system, and in various diseases. Facts upon this subject might be easily collected, and would probably lead to curious and instructive results. This would form an excellent subject for a monograph, and might be investigated by any student who possesses attention and perseverance, and has extensive opportunities for observation. Having touched upon the change in the frequency of the pulse produced by alteration of position, I may here remark that subsequent observations have confirmed the validity of the diagnostic mark which I was the first to draw from this circumstance, in distinguishing functional from organic disease of the heart. The general proposition may now be considered as established, that in a debilitated person, when a sudden change of position makes little or no dif-

ference in the frequency of the pulse, we may conclude that the heart, or at least its left ventricle, is increased in size and strength.

A dicrotous pulse is a prognostic sign of great value in many diseases. The following conclusions of much practical importance are, I think, especially deserving your careful attention :—

In fever, a dicrotous pulse, which is at the same time hard, is a *very bad* symptom, if it last more than twenty-four hours : when succeeded by epistaxis, and when it disappears after moderate epistaxis, it is not bad ; it may in the same fever thus appear and disappear several times, but each time it becomes more serious. When, in fever, a hard dicrotous pulse lasts for many days without any tendency to hemorrhage, the case, in nine out of ten, ends fatally.

In hemoptysis, epistaxis, and internal inflammations, a very hard dicrotous pulse sometimes occurs, which resists all treatment, and portends a fatal issue ; no matter how much the other symptoms may improve, so long as the pulse continues of this character, the patient is in imminent danger.

To return, however, to what I was before speaking of—the effects of posture on the pulse—authors who have written concerning the effects of *digitalis* on the organs of circulation, speak of the difference between the pulse, as observed in different positions, as an inexplicable anomaly, and seem quite ignorant that a similar phenomenon occurs in a less degree in health, and in an equal degree in many diseases. The fact appears to be, that *digitalis*, besides a great and debilitating influence on the whole constitution, and particularly the nervous system, possesses a *peculiar* power of diminishing the frequency of the pulse ; *but it is no anomaly* that, in persons under its influence, debilitated and nervous as they always are, when it is exhibited in doses sufficient to retard the pulse, there should be a great difference between the frequency of the pulse as examined in the horizontal, the sitting, and the erect postures.

I need scarcely add, that I cannot advance even a plausible conjecture concerning the reason why a change of position should so affect the frequency of the pulse. It is singular enough, however, that Humboldt should have observed something similar in the hearts of frogs, cut out of the body, the great vessels being tied. In one of these experiments the heart being placed on a piece of glass horizontally, after twelve minutes its pulsations had sunk to twelve in a minute. It was now suspended perpendicularly, and after two minutes the number of pulsations rose to twenty.* Baer, in his work, *Ueber Entwicklung geschichte der Thiere*, &c. has made the curious observation, that in hatching eggs artificially, the chick *in ovo* soon dies if the egg be so placed as to rest on either end. This circumstance, which he does not attempt to explain, suggests an obvious and beautiful explanation of the reason why eggs are not round but oval, as the latter shape effectually prevents them from assuming a position in the nest which would be fatal to the enclosed foetus. Some ova, as for instance those of certain reptiles, are round ; but I know of no bird whose eggs are not more or less oval. It would be interesting to investigate the cause of this phenomenon, as also to examine into the reasons of the remarkable difference which exists between the effects of position on the human foetus *in utero*, and on the human adult. In the former the inverted or semi-inverted position of the body is the natural position ; in the latter it is insupportable for any length of time.

* *Annals of Medicine*, vol. iv. 239.

LECTURE V.

THE GENERAL LAWS OF INFLAMMATION.—MARSHALL HALL'S VIEWS.—THE CIRCULATION OF THE BLOOD.—INFLUENCE OF THE CAPILLARIES.

GENTLEMEN—The general laws which govern inflammatory action, and the relation which the vascular system bears to that process, constitute a most important subject, which has engaged the attention of the ablest pathologists and practitioners in this country for the last half century. Since the date of the great John Hunter's celebrated work, which gave the first impulse to this investigation, many British and Continental writers have applied their talents to the illustration of the changes the vascular system undergoes during the progress of inflammation. Thomson, Hastings, W. Philip, James, Burns, and Marshall Hall have performed numerous and interesting experiments, which throw light on its phenomena; and we have gained much by the assiduity and research they have displayed, in endeavouring to illustrate a matter of such acknowledged difficulty. Still, these authors appear to have adopted some erroneous views, and to have misunderstood or overlooked some points of peculiar importance. I shall first direct your attention to the opinions of Dr. Marshall Hall, as explained in his lectures published in the *Lancet*. Dr. Hall, possessing extensive acquirements and high professional reputation, has cultivated the sciences of physiology and pathology with distinguished zeal, and made numerous experiments and microscopical observations, tending to illustrate the subject of inflammation; his opinions are, therefore, entitled to serious consideration.

Speaking of the inflammatory process, Dr. Hall observes—"I conclude that each cause of inflammation first induces such a physical effect upon the internal surface of the capillaries, as leads to the adherence of the globules of blood to it, and to their ultimate stagnation. This stagnation augments as the inflammation increases, and becomes more diffused, and seems to constitute the essential character of the disease." Here you perceive that he believes the first step to be the adherence of the globules of the blood to the internal surface of the capillaries; the consequence of which is, that the calibre of these vessels is considerably diminished, so that they become obstructed, and cause a stagnation of the blood, which Dr. Hall looks upon as the essential character of inflammation.

Further on he says—"I have never been able to detect any action in the capillaries themselves. It is, probably, by the partial obstruction to the circulation in the capillaries, that the minute arteries become enlarged." Now observe, according to this mode of explanation, the circulation being obstructed in the capillaries, in consequence of the adherence of the globules of blood to their sides, the arteries which supply them are propelling blood into obstructed vessels, and consequently become enlarged or dilated—and why? Dr. Hall says, "according to the well known law, that muscular organs augment, with obstacles to their functions." Here I may, in the first

place, observe, that Dr. Hall is not warranted in looking upon the minute arteries as muscular organs; but, waiving this point, how can the law alluded to explain the supposed increase in the capacity of the minute arteries? It might, indeed, explain the increase of thickness in their parietes; but is it not plain, that this very addition to the thickness of the arterial walls, so far from increasing, must diminish their calibre?

Again, he observes—"It is probably by the fact of stagnation that inflammation differs from blushing, eruptions, &c." Here, you perceive, he introduces the qualifying term, "probably." He continues—"It is generally asserted, that there is a series of vessels which only circulate the serum of the blood, and exclude the globules. This I believe to be mere hypothesis. Vessels which only admit of single globules will appear colourless. In inflammation, the minute arteries which only admit single globules at a time enlarge, and admit a greater number, and then the red colour becomes visible." He goes on then to say—"This enlargement of the blood-vessels is not confined to the minute arteries, for the larger vessels in the immediate vicinity of the inflamed part also become enlarged. * * * * This is owing to the obstruction of the true capillaries." And he illustrates this by instancing the application of a ligature to an arterial trunk, the consequence of which is, that the collateral arteries of the part become increased in size, in consequence of the obstruction. We shall see afterwards, how little this admits of being proved. He says—"It is not known how far this enlarged state of the arteries extends from the seat of the inflammation; but, in the case of an inflamed finger, the pulse at the wrist of the corresponding arm beats more strongly than it does on the opposite one."

Such are Dr. Marshall Hall's views of the causes of inflammation, and the part which the capillaries and minute arterial vessels play in that interesting process. You perceive, by the brief outline I have given, that he attributes all the phenomena to adherence of the blood-globules to the sides of the capillaries, the consequent obstruction of these vessels, and the enlargement of the minute arteries to which that obstruction gives rise. In this view of the case the vessels are regarded as passive, and are distended on purely mechanical principles; in fact, their enlargement is a mere dilatation.

Notwithstanding the respect I entertain for the learning, ability, and industry of Dr. Marshall Hall, I must say that I look upon his views as purely hypothetical, and am convinced, that he has arrived at unsound conclusions with respect to the nature of inflammation. I shall not, however, take up your time by going over his positions *seriatim*, and showing their untenable character; but shall proceed at once to lay before you the opinions to which observation and reflection have led me, and which have been taught for many years in my lectures on the Institutes of Medicine. I shall not, like Dr. Marshall Hall, attempt to explain the nature of inflammation, or determine its proximate cause, but shall content myself with endeavouring to arrange its phenomena, and point out their order, and the share which the capillaries have in the inflammatory process. Before entering on this subject, it may be necessary to premise a few observations on the circulation in general.

The human body is composed of various parts, differing in their ultimate structure, chemical composition, and vital functions. There is a very remarkable difference between muscle and areolar tissue, and between the latter and nervous tissue. If we examine these parts more closely, we find them differing not only in their structural arrangements, but also in the ingredients or materials of which they are composed. In muscle we find a large quantity

of fibrin or colouring matter ; in cartilage, fibrous membrane, and tendinous substance, we find more or less of the *fibrous structure* of muscle, but we do not meet with *fibrin*, and there is not the slightest trace of colouring matter. The same blood furnishes materials for the growth and nutrition of all, and conveys the nutrient particles to red and white tissues alike ; but the white parts require not red blood, and consequently receive none. Blood is a compound fluid, which contains, as it were, the raw material of all the tissues in a fluid state ; it is, in fact, flesh in a state of fluidity, and destined to combine with and support the solid portions of the frame. It is conveyed by the arteries all over the body, supplying each tissue with its appropriate materials, and contributing to its growth, sustentation and repair, in the amplest, and yet in the most economical manner. It does not enter the tissue of every organ in that state which has been termed arterial, and in which it appears as a fluid of a bright red colour. This is an error of which nature is never guilty. It would be absurd if all parts of the blood were carried to all the different tissues indiscriminately ; and it would, moreover, be a great waste of vital and mechanical power. The chief bulk of the blood is made up of a transparent fluid or lymph, holding in solution various salts, besides albumen and fibrin. The red globules are immersed, but not dissolved, in this fluid ; and it appears from the observations of Mayer, that in the minute vessels the red globules occupy the central part, surrounded by the transparent fluid. The colouring globules are necessary for the nutrition of muscular, mucous, and some other tissues ; and are carried by the minute vessels wherever they are required. Every part of the blood is required in a muscle ; fibrin and colouring matter for its essential fibre ; albumen, fatty matter, &c., for its areolar tissue and adipose membrane. The white tissues, as I have already observed, receive no red blood, because they require none—this is quite certain. Serous membrane, for instance, contains neither fibrin nor colouring matter : at what point of the circulation does the separation of the albumen take place ? Is it an act of nutritive secretion which separates it from the whole mass of arterial blood, or are only the serous portions of the blood carried to the white tissues ? “Serous vessels,” says Müller, “that is, blood-vessels which are too minute to allow the passage of the red particles, and which are traversed, therefore, merely by the lymph of the blood, may possibly exist, but they have not been demonstrated.”

It seems to me, however, that it is by no means necessary for bloodvessels to be too minute to allow the passage of red globules, in order to make these vessels the vehicles of lymph alone. The entrance of the globules into them will be determined by other circumstances than their size. Already, as the blood approaches the capillary system, the microscope detects a tendency to a separation between its lymph and colouring globules ; and no doubt their complete separation is effected by vital agencies, independent of mere calibre. Hence we may explain the fact, that no red blood seems to circulate in serous membranes during health ; but the moment inflammation sets in, the natural play of vital energies is deranged, and the red globules, finding their way into unwonted channels, vessels innumerable, before filled with a transparent lymph, and therefore not visible, start suddenly into view, in consequence of their now containing an opaque and coloured fluid.

According to Hall, Müller, and other physiologists, all minute vessels contain red particles, which, however, are believed to exert no influence on their colour, so long as these particles are only admitted singly, and not several at a time. But when inflammation comes on, according to Hall these

vessels are enlarged in consequence of obstruction, and then, admitting a greater proportion of red globules, become visible. Now, gentlemen, observe how suddenly, when the conjunctiva connected with the sclerotic is irritated, numerous vessels appear filled with red blood. Here is no time for the adhesion of globules to the internal surfaces of the vessels—no time for the gradual enlargement of vessels previously too small for the admission of the red globules; no, the vessels existed there, but they contained no red globules; they admitted none, because their admission would have proved unnecessary or injurious. I do not deny the sudden enlargement of minute vessels; on the contrary, I believe in it most firmly, and am persuaded that the minute and capillary arterial branches which, in health, admit only lymph, may suddenly expand and increase in size. I do not, for reasons hereafter to be detailed, consider this expansion as passive; and I believe that the red globules made little or no part of the fluid previously circulating in these vessels. Indeed, it seems rather illogical to argue that, because red globules might be present without imparting a perceptible red colour to this fluid, that, therefore, they are present. When the contents of a vessel are to the eye colourless, the *onus probandi* lies with him who asserts the presence of red colouring matter; and, until that is proved, in each particular case, the contained fluid must be regarded as colourless.

As to the idea that lymph vessels could not exist unless their diameter was smaller than that of the red globules, it is too mechanical to deserve serious attention. The entrance of animal matters into, and their propulsion along vessels, depend most assuredly on other conditions than mere size of particles. Indeed, Müller expressly says—"In the most minute capillaries which are not red, nor even yellow, but quite transparent, there is merely a single line of red particles, separated by unequal intervals, and from time to time no red particles are seen in these colourless vessels; but I have seen no canals through which red particles did not occasionally pass, and which, therefore, deserved the name of *vasa serosa*, and Wedemeyer, who says he has seen such *vasa serosa* himself, confesses that some of the red bodies traversed them from time to time." Here, then, we have my argument confirmed by observation, and the fact proved, that the entrance and passage of the red particles does not depend on the mere size of the vessels.

If we take an accurate view of the general circulation, we shall find, then, that there is a great circulation of red fluid containing the raw material of all the tissues; which fluid, in its integral state, is destined chiefly for the muscles of voluntary and involuntary motion, into every part of which red vessels penetrate, and from which red blood returns. In fact, red blood forms, as it were, a separate circulation, sweeping by the white tissues, to which it merely detaches its uncoloured lymph, while the red blood enters the capillaries of the red tissues. When the minute arteries arrive at the parts where red blood is no longer necessary, they send off smaller vessels which contain only white blood, mixed with comparatively few, if any, red globules, while the branches which carry red blood proceed to join the corresponding veins.

I dissent from the common notion that the circulation of the blood goes on very rapidly. It has been computed that the heart expels from two to four ounces at each stroke of the left ventricle; and if we compute the quantity of blood in the body to be from twenty to thirty pounds, we shall be led to conclude that the whole mass of the blood passes through the heart in a very short space of time. This, however, is only taking a partial view of the

matter. It is true that there is a rapid central current of red blood which accomplishes its circle through the body in a very short time; but a large proportion of the juices of the body circulates very slowly through the tissues it supplies, being detained in the capillary system for a considerable period before it is returned to the general mass of the circulation. If you compare the relative circulations of different classes of animals, you will find that they differ considerably in the composition of their blood, as well as the rate at which it travels through the system. Some animals have only white blood and a capillary circulation—without any distinct arteries or veins. Others possess vessels corresponding to arteries and veins—but still no distinct organ like the heart. Finally, we arrive at a higher class, which has not only distinct arteries and veins, but also a heart. In each of these classes the circulation differs not only in the properties of the circulated fluid, but also in the velocity with which it travels. It is much slower, much more sluggish in the lower than in the upper classes of animals. In the same way, blood does not circulate so rapidly in tissues of a low degree of organization (as bone, cellular and fibrous membrane), as in the red parts of the body. It is, therefore, not unreasonable to suppose that bone lives at one rate, fibre at another, muscle at another, and nervous matter differently from all. These views are of importance when brought to bear on the subject of inflammation, and tend to explain the slow progress it makes in certain tissues.

You must have perceived that, from the very beginning, I have rejected the idea that the blood is propelled through the system by the *vis a tergo* alone. If that were the case, the current, though diminishing in velocity as it receded from the heart, would be equable in vessels of the same size throughout the whole system. But, in my opinion, the current of circulation has many different rates, which depend not on the *vis a tergo* alone, or the distance from the heart and size of the vessels,* but on the vital energy of the vessels themselves. Hear what Müller says on this subject:—"Wedemeyer's description of the course of the blood in the anastomosing capillaries agrees perfectly with what I have observed. Sometimes, he says, the red particles flow rapidly from one current into another, as if by attraction. In other cases the current which they join is very rapid, *but they are arrested, as it were, in the collateral current, and only from time to time find means of entering.* Sometimes a red particle is even thrown back out of the rapid current into a weaker stream, and is again repelled. I have also remarked that the same anastomosing branch between two currents sometimes receives the blood in one direction, and sometimes in the other, and that variations of pressure and position and motions of the animal are always the causes of these changes."

Such is Müller's testimony concerning the circulation of the capillaries, and it bears me out in the assertion, that a very great portion of blood (using that word in its most comprehensive sense, and meaning thereby *nutritive fluid*), is comparatively stagnant in the capillary system; but I must confess that I felt much astonished at Müller's assertion, that "all these variations in the capillary currents are, just as in currents of water on irrigated land, merely the results of mechanical causes.

Having made these preliminary observations, we are now better prepared to speak of the forces by means of which the circulation of blood is accomplished. Most authors, and with them Müller, have stated that the

* The blood's velocity in its progress from the heart is diminished chiefly by two physical causes, viz. increase of friction, and the increasing capacity (considered as a whole), of the vessels which contain it.

motion of the blood in the capillaries is wholly dependent on the heart's action. Now these vessels are mere simple membranous tubes, and there is no doubt that their membranous parietes must exert a strong power of endosmosis and exosmosis, as shown by Dr. Rogers in the *American Journal of Medical Science*. This power must necessarily have a great influence on the motions of the blood contained in the capillaries, causing a mutual interchange of contents between vessels in contact with each other, and between the vessels and surrounding parenchyma of the organs. Again, it has been proved by Dr. Draper, in the same journal, that in capillary tubes and organic pores a motion of the contents must result when the contained fluid possesses certain physical properties, from its mere contact with the internal surface of vessels so minute.

Here, then, are two sources of motive power quite independent of the heart's action, and which must necessarily influence, in a most important manner, the capillary circulation : but this is not all, for there resides in the small vessels connected with the capillaries, whether minute arteries or minute veins, a *vital sensibility* which enables them, by suddenly or gradually changing their calibre, to increase or diminish the quantity of fluid in any particular organ or tissue.

Facts in abundance may be brought forward in proof of this assertion. When a fatty or fleshy tumour arises on any part of the body, we have new vessels, as it were, created ; and there is no reason to attribute their formation to any thing like a dilating *vis a tergo*. But the formation of the vascular system in the fetus affords the strongest proofs. Here the smaller and more minute parts are formed first, the development commencing with the capillaries and extending to the minute arteries and veins, and then to the larger trunks ; until, at last, the heart is superadded, at first of an elementary, afterwards of a complicated structure.

The best account of the development of the vascular system in the fœtus is contained in Von Baer's work, published in 1837, in Königsberg.* He says (Part II. p. 126), that there is no doubt that the blood is formed before the vessels. The formation of blood goes on in every part of the body, and, when formed, it is put in motion by the agency of some unknown cause which impels it in the proper direction, until it at length reaches the central formation of blood, around which is developed a tubular canal, afterwards to be further modified and changed into the heart. In truth the first motions of the blood are towards the heart, *and consequently the first vessels formed are the veins* ; a fact in itself sufficient to disprove the hypothesis that this motive power which presides over the circulation resides exclusively in the ventricles of the heart. What do we find occurring in the case of pseudo-membranes resulting from pleuritic inflammation ? Exactly what takes place in the development of the fœtus. A large quantity of lymph is effused, which at first has no vascular connexion whatever with the parietes of the chest. After some time, however, the effused lymph becomes organized, *and vessels begin to form in its substance* ; these extend gradually, and join the vessels of the tissue with which the lymph lies in contact. Of this formation of vessels of effused lymph there can be no doubt ; I have often examined it with admiration, and it is likewise attested by Andral. When a mass of lymph, effused into the pleural cavity, is about to organize itself, and become vascular, a vast number of red points make their appearance throughout the mass, and

* *Ueber Entwicklung Geschichte der Thiere*, &c.

are connected with very minute streaks having a vascular distribution. In this lymph, then, red blood is manufactured, as in the fetal body at an earlier period of development, and vessels are formed; and sanguineous circulation no doubt exists.

These facts, I say, bear strongly on the question before us, proving beyond a doubt that the vital properties of living matter are capable of forming vessels, and of rapidly increasing their size when formed. To account for the sudden increase in the size of vessels belonging to an inflamed part, we must look to this fact, and not rely solely on increased *vis a tergo* aided by obstruction.

Now the whole of Dr. Marshall Hall's explanation depends on these two causes—*vis a tergo* and obstruction. But I say that vessels may be formed, multiplied, and enlarged independently of these causes, and in consequence of an altered vital action of the parts in which the process occurs. Let me refer to the case of the impregnated uterus. In the unimpregnated state, the womb is a small organ, with vessels and nerves so small as scarcely to admit of being satisfactorily traced. What takes place after conception? It has now new and important functions to perform, and it becomes proportionally increased in magnitude and vital activity; its arteries and veins become elongated and enlarged; its walls become thickened, and its nerves increased in size. And yet we are told that this increase in the size of its vessels depends on obstruction. Where does the obstruction exist? What proof have we that there is any increased *vis a tergo*? Will any of these principles account for the augmented size of its nerves? Tiedemann has proved beyond contradiction that the nervous matter of the womb is augmented to a very remarkable degree during the impregnated state, and that minute nervous filaments, scarcely discoverable with the aid of a microscope, enlarge into bands visible to the naked eye. The same thing occurs with respect to the minute arteries and veins; from being but barely perceptible, they become large tortuous vessels, carrying an abundant supply of blood, and performing their functions with extraordinary activity. I do not pretend to offer any explanation of these facts; I merely place them before you, and show you the analogy which exists between the vascular and nervous development.

The vessels increase in size and capacity, so do the nerves; and the augmented size and capacity of both depend on the same unknown cause. The nerves are developed in the same order as the vessels, and, like the latter, they increase from the circumference to the centre. Nay, I am persuaded that, did our means of investigating the nerves possess the same advantages as those we enjoy in the examination of the vessels, we should find that, in inflamed parts, the nervous matter increases, in many cases, as rapidly and to as considerable an extent as the vascular.

So far, gentlemen, I have endeavoured to lay before you proofs of the independence of the capillary circulation, a fact which I have long since brought forward in my public lectures, and of which I have written somewhat in detail, in my views of Dr. Joerg's work on Atelectasis of New-born Infants. These views, I am happy to state, have been further confirmed by Dr. Houston, in his essays published in the tenth and twenty-fourth volumes of the *Dublin Journal*. In these essays, which I recommend to the attentive perusal of every student, Dr. Houston gives an account of an extraordinary case of twins born of a healthy young woman, between the seventh and eighth month of her pregnancy. One of the children was, to all outward appearance, perfect in every particular, and of the full growth of its age; the other, a female,

and the subject of Dr. Houston's communication, was a monster, of somewhat smaller size than its companion. Both were alive at the time of delivery, but died almost immediately after. There was a separate cord, and a separate set of membranes, for each fœtus. The abnormal one had neither brain, heart, lungs, nor liver; the kidneys were of enormous size, nearly filling the abdomen, and extending to the apex of the cavity formed by the ribs. The umbilical vein, after quitting the cord, descended between the abdominal muscles and peritoneum as far as Poupart's ligament, and there opened into the external iliac vein, which became enlarged in size at this point. From this vein all the veins of the body were derived; large branches passed to the pelvis, thighs, and kidneys, and smaller ones to the intercostal spaces, and the tumour which constituted the head. These veins were devoid of valves, and terminated in the capillaries. From the latter, the arteries began by fine roots, and gradually coalescing, united into a sort of aorta on the forepart of the spine, which descending, divided into the iliac and hypogastric arteries in the usual way. No communication existed between the arteries and veins, except at their capillary terminations.

Such is the history of this very remarkable case, as given by Dr. Houston. I have not time at present to enter into his arguments; but I think he has satisfactorily proved, that in this instance the circulation was carried on without the aid of the heart of the other twin (as supposed by Sir Astley Cooper), or of the heart of the mother, and that it depended solely on the vital energy of the capillary and other vessels.

Another case of a monster without a heart, is related in the *American Journal of Medical Science*, for February, 1838, by Dr. Jackson, of Boston. This was likewise a twin; and there can be but little doubt that its circulation was quite independent of any assistance derived from the heart of its fellow.

I have already spoken of the dilatation of the arteries and veins of inflamed parts, as being produced by something very different from mere distention; and that it is not of a passive but an active nature. That the larger vessels actively dilate, can scarcely be doubted by any one who has observed the state of the temporal arteries in phrenitis or apoplexy; that the veins have a similar power may be observed on plunging the hands or feet into a hot medium, whether moist or dry. Blisters applied to the skin produce for the time increased size of the cutaneous veins; and sores on the leg may, when considerable and of long duration, give rise to a varicose state of the veins. When a grain of sand falls into the eye, how sudden is the redness—how numerous the vessels which now appear gorged with blood! This change takes place in a few seconds, and, in my opinion, can be most satisfactorily accounted for, by supposing that the capillaries and smaller vessels enjoy a wide range of size, if I may use the expression, and are capable of enlarging or diminishing their calibre, according to the exigencies of the case and the state of the circulation. That the large arteries and veins do so, is acknowledged by all, and is proved by arterial trunks contracting on their contents so as to maintain their proper tension, no matter how much blood is drawn from an animal. The larger veins are capable of a like contraction and expansion: can similar properties be denied to the smaller arteries, possessing, as they do, an elastic coat proportionally thicker? The vascular phenomena attending a blush ought to have taught physiologists how rapidly, how instantaneously, blood may be drawn to a particular part, and may again desert it; and that, under circumstances where the *vis a tergo* could not determine a flow of blood to the part in question, more than to any other in

the body. Do we need microscopic examinations on the capillaries of recently killed animals to instruct us, when such phenomena offer themselves, as it were, for the very purpose of illustration? When the child breathes for the first time, the air admitted into the lungs gives new energy to their capillaries, and at once the great current of blood flows through the pulmonary arteries, deserting the ductus arteriosus. In a seven months' child the latter passage is still very large; and yet, when the child breathes, its being open effects very little, if anything, towards diminishing the flow of blood into the pulmonary arteries.

Here, again, we observe how arteries grow independently of mere pressure from within; for the pulmonary arteries and pulmonary veins are enlarging themselves long, long before they are called on to be channels for a quantity of blood at all proportioned to their calibres. John Hunter observed the enlargement of the arteries of an inflamed part, and his observations, and those of others, have brought to light a periodical and remarkable increase in the size of the vessels destined to promote the growth of the stag's horns. Are we, in this case, to explain that enlargement by obstruction, or by the *vis a tergo*? It is impossible to do so; and we must, then, look to the vessels of the part itself for a solution of the question. In such instances, as in the case of the pregnant uterus, these vessels are endowed with this power of growth and enlargement, quite independently of the general vascular system, or the action of its centre—the heart.

I am the more anxious to impress on you this view of the subject, as the hypothesis of obstruction has been adopted by many late writers, as explanatory of the local changes of circulation attending inflammation. Thus Dr. Williams, in his admirable lectures published in the *Medical Gazette* (No. 528), says, "We cannot, in the present state of pathological knowledge, doubt that the circulation through the inflamed vessels is, to a certain degree, obstructed; whilst, either as a consequence of this, or from some co-operating influence, the vessels leading to the part become dilated, and being thus more open than others to the pulse-wave of the heart, they become the seat of that throbbing hard pulse that has been mistaken for increased action of the vessels themselves."

Now, gentlemen, you observe here that Dr. Williams expresses himself doubtfully about the dilatation of the vessels being caused by obstruction, and he even speaks of some co-operating influence. We shall, therefore, content ourselves with having recited his opinion on this subject. I must observe, however, that the dilatation of the vessels, *however caused*, can on no principle account for their becoming the seat of throbbing, and a hard pulse: their being more open than others to the pulse-wave from the heart could, at the utmost, only place them in the situation of other arteries naturally of the size they have now attained to; but we do not find that such arteries throb, or have a hard pulse. Arteries do not throb, or become the seat of a hard pulse, in proportion to their size. That is not the fact; and, consequently, Dr. Williams's explanation cannot be admitted.

Dr. Weatherhead, who has arrived at very nearly the same view of the subject with myself, says, "The first effect of an excitant, or irritant, applied to any part of the body, is to attract the blood to the seat of irritation, and to quicken its current in the capillaries." So far we perfectly agree. Here Dr. Weatherhead estimates the vital energy of the vessels of the part at its true value, and does not call in the aid of an increased *vis a tergo* to account for an augmented determination of blood to any particular locality; but to

what follows I cannot accede :—" If these effects be kept up beyond a certain period, or carried beyond a certain degree, the excitation continues to attract as much blood as before, while the power of the capillaries to forward it diminishes, by the exhaustion ensuing from their prolonged over-action." There seems but a weak analogy in support of the assertion, that increased vascular action must necessarily produce vascular exhaustion.

It may be objected to my view, that dilatation of an active nature cannot be conceded to the capillaries, whose coats are quite thin and membranous ; but when the objects are so minute, it is quite impossible to determine the physical or vital powers of tissues ; and we should recollect that what is deficient in degree may, in the case of capillaries, be made up by their number, which is immense in every part of the body. Still, so far as our observations do go, they seem to establish the property in question.*

Müller, whose opinion on all physiological questions is of the greatest weight, has adopted on this subject an hypothesis which appears to me to be quite untenable. It is observable that the first of the following paragraphs, which I quote from his work, proves, that when writing it, he felt conscious that the remarkable phenomena of *vital turgescence* are totally irreconcilable with the theory, which denies any permanent circulating power but that of the heart, and which asserts that "the motion of the blood in the capillaries is wholly dependent on the heart's action !" Let us hear what he says concerning *vital turgescence of the blood vessels* :—" Although it be denied that the circulation is in any way aided by an attraction between the blood and the capillaries, yet the existence of such an attraction or affinity, may be admitted in the instance of the 'turgescence, turgor vitalis, or orgasm,' observed to take place in certain parts of the body, which are the seat of increased vital action, independently of the action of the heart. This condition of turgescence is very evident in plants : thus to the fruit-bud, which contains the impregnated ovum, there is, as Burdach remarks, an afflux of sap : ubi stimulus, ibi affluxus.

"*The mutual vital action, or affinity between the blood and the tissues of the body*, which is an essential part of the process of nutrition, is, under many circumstances, greatly increased ; and gives rise to an accumulation of blood in the dilated vessels of the organ. It is seen, for example, in the genitals, during the state of sexual desire, in the uterus during pregnancy, in the stomach during digestion, and in the processes of the cranial bones on which the stag's antlers afterwards rest, at the time of the reproduction of these parts. The local accumulation of blood, with the dilatation of old, and the formation of new vessels, is, however, seen most frequently in the embryo, in which new organs are developed in succession by a process of this kind ; while, on the other hand, other organs, such as the branchiæ of the salamander and frog, and the tail of the latter animal, become atrophied, and perish as soon as the vital affinity which existed between the blood and their tissues ceases to be exerted.

"The phenomena of turgescence have been supposed to depend on an increased action or contraction in the arteries. But arteries present no periodic contractions of a muscular nature ; and a persistent contraction of the

* It is only this very year that physiologists have for the first time admitted that the middle coat of arteries, besides elastic tissue, is provided with muscular fibre. The discovery of this fact is due to the investigations of Henle, and has been confirmed by the electromagnetic experiments of Ed. and E. H. Weber.—*Supplement to Müller's Physiology*, by Baly and Kirkes. 1848, p. 2.

arteries, unless it were progressive or vermicular, or aided by valves arranged in a determinate direction, would be quite inadequate to produce a state of turgescence in any part.

"To explain the state of orgasm of the uterus during pregnancy, and of the bony processes which bear the antlers of the stag, we must presuppose the existence of an increased affinity between the blood and the tissue of the organ. This condition may be excited very suddenly, in the instantaneous injection of the cheeks with blood in the act of blushing, and of the whole head under the influence of violent passions, in both of which instances the local phenomena are evidently induced by nervous influence. The active congestion of certain organs—of the brain, for example—while they are in a state of excitement, is a similar phenomenon.

"If the organ which is susceptible of the increased affinity between the blood and the tissue is, at the same time, capable of considerable distention, tumefaction and erection take place."*

It will, I believe, be readily acknowledged that Müller's explanation is, after all, a mere hypothesis. Is this affinity between the blood and the tissues of the body chemical? or is it a mutual vital action? If the latter, then the vessels, *they being the only tissues in contact with the blood*, are active, contrary to his previous hypothesis. As to the chemical explanation of a *blush*, it surely does not merit examination.

The facts referred to by Müller in the above passage all tend to corroborate the view I have adopted, and show that local changes of nutrition, vascularity, and circulation may be quite independent of the heart's action.

We must next turn our attention to the increase in size of some of the larger arteries.

"Apply a ligature," says Dr. Hall, "to the principal artery of a limb; the circulation is then carried on by the collateral branches, which become enlarged for this very purpose, and in consequence of the obstruction." Now let us study the phenomena a little more accurately, and we shall soon see how erroneous is this explanation.

In the first place, what are the physical results produced by tying one of the large arteries of a limb? The *vis a tergo*, or propelling power of the heart, continues just as before; the quantity of fluid or blood within the whole system of arterial tubes is unchanged, while the forces to be overcome by the circulating power remain also the same. In fact, all the general physical conditions are unaltered after the ligature has been applied, except that a portion of the blood can no longer enter the tied artery.

Let us now investigate what effects this non-entrance of a certain portion of the blood into its accustomed channel is likely to produce on the rest of the arterial system. When the principal artery of a limb is tied, the blood circulating in the remaining arteries of the body and the other arteries of that limb is pressed more strongly against the arterial parietes. But as the distending force resulting from this increased pressure is not confined to any particular artery of the body, but affects all, more or less, it is obvious that a power so extensively distributed and subdivided can exert but little distending influence on any individual artery, or, in other words, can tend but little to dilate any of the arterial tubes. Now it is obvious, from the laws of hydrostatics, that this increased pressure will be more exerted, *in proportion*, on the main collateral arteries of the limb than on the smaller; it will, in truth, be

* Müller's *Physiology*, translated by W. Baly, M.D., 2nd ed., vol. 1, p. 233.

scarcely sensible in the latter, and yet these are the very arteries which enlarge first after the operation for aneurism. The increase in the size of the arteries commences, not where it ought to commence, if it depended merely on dilatation from increased pressure, viz. in the larger arteries and in the collateral branches close to the ligature, but it commences in the smaller and more distant arterial ramifications. In addition to the fact that a proportionally less pressure is thrown on the smaller arteries, we must recollect that the latter have parietes much thicker in proportion to their calibre than the larger branches. This is another material objection to Dr. Hall's explanation of their increase in size.

What are the phenomena observed after applying a ligature to an artery of large size, where a sufficient collateral circulation may be supplied? First, the sudden diminution of circulation in the parts below the ligature gives rise to coldness and paleness of the limb; but in a few hours the circulation gradually returns, the thermometrical temperature of the limb rises, and the activity of the capillary system is greater than in the natural condition of the limb. This excitement continues for some time, and then diminishes to the ordinary standard of health. In eight, twelve, or twenty-four hours, after the application of a ligature to the main artery of a limb, we find the skin of the parts below the ligature pale and cool, but in a few hours afterwards its temperature rises, and it exhibits an evidently increased arterial action. Now it is difficult to conceive that the main collateral branches have been dilated in so short a space of time.

The mode in which the phenomena witnessed in this instance are best explained, seems to me to be the following. When a large portion of the blood destined for the supply of a limb is cut off, all the tissues of a part so deprived receive a shock: the muscles, nerves, capillary vessels—in fact, the vital functions of the whole—are more or less affected. After some time, however, the vital depression is followed by reaction, and this commences in the smaller arteries and capillary system, its commencement being marked by uneasy sensations, increase of temperature, and arterial throbbing. The initiative of the restoration of the circulation belongs to the extreme vessels, which take on an increased action, and this is gradually extended to larger arteries. These gradually augment in power, become enlarged and distended, and at length the circulation of the affected limb is restored to a state of efficacy, equal, if not identical with its pristine condition. Now, you are told that the increased activity of the capillary vessels in this instance is referred to the *vis a tergo* operating through the anastomosing branches. This is a false assumption. In the first place, the influence of the heart's action, when the blood passes through small anastomosing branches, and by circuitous courses, must be less powerful than before the operation, when the main channels remained pervious. The *vis a tergo* is therefore lessened, and yet the capillary distention is greater than before the operation, or in the sound limb.

In the next place, this argument is of more force, when it is considered that the enlargement commences in the smaller, and gradually extends to the larger vessels; and also, that in some cases the branches from the main artery, through which the blood must pass, do not become perceptibly enlarged. Thus Mr. Hodgson, in his work on diseases of arteries, says,—“The dilatation takes place principally in minute ramifications. The trunks, and the mouths of the vessels going off above the place of obstruction in the main artery, in several preparations, did not appear larger than in their natural state, and in a few instances only a slight dilatation was perceptible.” From these

facts it is obvious that the vessels least under the influence of the heart are the most dilated. But the most decisive proof is the return of the capillaries and minute arteries to their ordinary size, at the time when, the larger branches being dilated, the *vis a tergo* should be more operative. Hence it would appear that the power of distention resides in the arteries themselves, the irritation commencing in the capillaries, and being sympathetically propagated to the larger vessels. This is further confirmed by the fact, that, if an inflamed part, or a vascular tumour, be supplied by several arteries, and one of them be divided, the others will enlarge.

It is scarcely necessary for me to direct your attention here to the phenomena which occur in the erectile tissues, as the corpora cavernosa, &c. It cannot surely be maintained that the sudden increase in the afflux of blood to these parts is owing to any *vis a tergo*, or momentary augmentation of the propelling power of the heart. No; tissues of this kind enjoy the power of attracting to themselves an increased quantity of blood, in virtue of the vital power resident in them, and not from any peculiar exertion of extraneous forces. In fact, the capillary vessels enjoy the property of actively dilating, and drawing the blood into them, and this appears to be one of the principal causes of the circulation. Of this there is abundant proof. It has been observed in vivisections, that after the heart has ceased to act, the capillary vessels remain distended, and appear to carry on their functions as long as any blood is supplied to them from the arteries. It has been also remarked, that the larger arterial branches become first empty, then the smaller, and finally the capillaries. Dr. Philip states, that he has observed the circulation of the mesentery to continue for several minutes after the heart had been excised. This is the true explanation of the fact, that the arteries are so frequently found quite empty after death.

One of the strongest proofs we have of the power which the capillaries possess of drawing blood to themselves, is derived from the phenomena observed in vascular tumours. If scratched, or slightly wounded, these tumours frequently bleed to an alarming extent; while the division of the arteries which lead to them, and the removal of the whole mass, is attended with a comparatively small loss of blood. This is further exemplified in the familiar operation of opening the temporal artery. If the artery be only partially divided, and its connexion with the capillaries still to a certain degree maintained, it bleeds copiously; but if it be cut across, and the connexion wholly destroyed, it ceases to bleed altogether. Professor Smith, of Philadelphia,* amputated a leg below the knee, for dry gangrene of the foot and ankle. The great arteries were found wholly altered in their structure, being, as it were, converted into tubes of bone. Although pressure was completely removed from the femoral artery, and no means whatever were used to suppress the hemorrhage, the quantity of blood lost did not amount to half a table-spoonful. At the same time the action of the heart was vigorous, and the pulse at the wrist of the ordinary strength and fulness. Now in this case some blood must have been passing through the tibial arteries before the operation, for there was some circulation in the leg down as far as the ankle, and the collateral arteries, or anastomosing branches, were not enlarged.

If we refer to the phenomena of wounds which engage arteries, we shall

* This fact is mentioned in a monograph which I received from America many years ago. Unluckily I have mislaid it, and cannot call to mind the author's name. He advocated views similar to those I have here attempted to establish, and to him I am indebted for the argument derived from the placental circulation.

find, as I have already stated, when alluding to the operation of opening the temporal artery, that the wounded artery of an injured limb bleeds much more than the same artery of an amputated one. Hence it is that branches which would pour out a large quantity of blood, if merely wounded, sometimes do not require a ligature at all, although their divided orifices open on the surface of a stump. Another instance in which the attracting power of the capillaries may be seen, is in cases where portions of an amputated finger have again united, of which we have several examples. In this case the fluids effused by the upper cut surface are absorbed and circulated by the vessels of the amputated tip.

But one of the most remarkable proofs of the position I have laid down is derived from the circulation of the blood in the placenta. In this instance the impetus which the blood possesses in the umbilical arteries has been attributed to the *vis a tergo* derived from the heart of the foetus. But after the detachment of the placenta, after the birth of the foetus, the pulsation in the cord ceases; first at the placenta, and then at the umbilicus of the infant. After this period a section of the cord is not followed by anything like the amount of hemorrhage which might be expected from the division of vessels of such diameter, and in many instances there is no loss of blood whatever. Now why does the flow of blood cease in the umbilical arteries? The *vis a tergo* is as powerful after birth as before, and operates on blood in tubes free from obstruction. It cannot be attributed to cold, for the circulation continues in every part of the infant; nor to exhaustion, for the foetus loses no blood, and its circulation is now independent of the mother. Neither is it owing to the action of the lungs, which are said to divert the blood from the placenta; for although a greater portion of blood is carried to the lungs, after than before birth, yet this would not account for the total cessation of the circulation in vessels so large as the umbilical arteries. The explanation, therefore, commonly given is not capable of being proved. From the facts which I have brought forward, it would appear that the organic vital actions of the placenta depend upon its own life, and that when this body is detached from the uterus, it of course dies, and the functions of its capillary system cease. The suction-power of the small vessels then continues no longer to assist the *vis a tergo* in carrying blood through the umbilical arteries, and the circulation declines, first, at the placenta, and finally in the umbilical arteries, at their junction with the abdomen of the foetus.

LECTURE VI.

INFLAMMATION—THE CAPILLARY CIRCULATION.

GENTLEMEN,—I have now laid before you at some length the arguments derived from experiments and pathology in favour of the capillaries having a direct influence on the circulation. Those which may be borrowed from comparative anatomy are still stronger. If we look to the vegetable kingdom, we shall find that the force with which the sap—the blood of plants—circulates in their vessels is very great. Hales and Dutrochet have proved this by direct experiment. If a vine be cut down in spring to the distance of three feet from the ground, it throws out sap with such a force as to raise twenty-one feet of water. In other experiments this power was found capable of raising thirty-two and a half inches of mercury, or thirty-five feet, five inches and three quarters of water; and thirty-eight inches of mercury, or forty-three feet three inches and one-third of water. To effect this prodigious circulation, as it takes place in plants, the force must be very great, for we know that it is capable of raising from the ground a large quantity of water, combined with nutritious principles, to the top of the loftiest palm or forest tree—in fact, to an altitude of one hundred and fifty feet.

Now in what organs does this power reside? There is no central organ in plants, nothing like a heart—nothing like large arterial tubes. How, then, is the ascent of the nutritious fluid accomplished? Let us study the phenomena for a moment, and we shall find sufficient evidence to satisfy ourselves that *the fluid circulating in each part of the tree is brought to it chiefly by the action of the vessel of the part itself*. I do not mean to deny the great power which the spongioles of the roots, acting as capillary systems, exert in *driving* the fluids they absorb through the tubular vessels of trees; this power is no doubt aided by the buds and leaves, whose capillaries, when acted on by a proper temperature, discharge their vital functions with activity, and are capable of drawing the sap to the extremities of the branches. Thus in the case of a vine observed by Richerand, one branch of which had crept into a smith's shop, this branch remained in leaf, or rather threw out fresh leaves in winter, while all the other branches continued quite bare. Again, cut off a branch of a living plant and place it in water, how actively does it absorb the water, and endeavour to prolong its existence. In winter this attraction of the ultimate ramifications of plants ceases, but returns again with the genial warmth of spring, when the buds begin to expand.

Phenomena analogous to these are also observed in many animals. There are numerous tribes of animals possessing an active circulation, which have no heart whatever. Thus the Medusæ and Echinodermata, which must enjoy an active circulation, as is proved by their rapid growth, have no heart. In the *Holothurio tubulosa*, Cuvier has traced vessels going to the organs of respiration (pulmonary arteries), and vessels coming from the same (pulmonary veins), as also a system of arterial and venous tubes destined to carry on the

general circulation, but no heart. There are numberless examples of this arrangement to be found in the animal kingdom. In fact, a great deal of the motion observed in the fluids of the human body is effected by other means besides the heart, and these means are the powers possessed by the capillary vessels and membranous tissues of the body, which, by virtue of an unknown law, aid materially in the circulation.

You perceive, then, gentlemen, that my views are quite opposed to those who assert, that in inflammation the enlargement of the capillaries is passive. Dr. Hastings and Dr. Philip allow that the capillaries dilate during inflammation, but they attribute this effect to debility. This, however, is a mere assumption. The phrases, passive and debilitated, put one in mind of another hackneyed expression founded alike on fallacy, namely, indolent ulcers. Now there is nothing more active than what is termed an indolent ulcer. It manufactures more secretion, uses more blood, and produces more pain than any equivalent portion of the same tissue throughout the body, and yet it is termed indolent ! It is so with regard to the capillaries. It is said that in inflammation the capillary vessels are obstructed, and their force weakened. What is the real fact ? Take an instance of conjunctivitis. What do you observe here ? The affected membrane is swollen, its nervous sensibility exalted, its thermometrical temperature increased, its secretion augmented. Are any of these symptoms of debility ? I think they can hardly be looked upon as such. The increase of pain, heat, and fluid secretions, the augmentation in size,—all the phenomena, in fact, are opposed to the theory of debility. There is no passive dilatation or weakness ; the capillaries enlarge and dilate from increased, and not from diminished action ; red blood finds its way into vessels which before received only white ; and unusual secretions occur in the affected parts. *The capillaries have the initiative ; with them commences the enlargement, which afterwards extends to the smaller arteries, and from these to the larger branches.*

Under ordinary circumstances, the capillary circulation continues some time after the heart has ceased to beat, for the capillaries belong to that class of tissues which possess an inferior degree of vitality ; and it has been shown by Bichat that such tissues survive those of a higher degree of organization. Hence, the capillaries continue to act for some time after the heart has ceased to beat ; and as it is a law that the capillaries of the lungs will not transmit non-arterialized blood, the systemic veins become gradually distended, while the systemic arteries are emptied, so that, after death, we seldom find any blood in the latter.

A very curious case, published by Dr. Houston, supports very strongly the views which I have now put forward. In this case the circulation had ceased in one of the lower extremities. The foot, and afterwards the leg, were attacked with dry gangrene, of which the patient died. No obstruction was found in the vessels after death, and the ordinary injection passed readily into all the arterial ramifications. The arteries were all pervious, and apparently natural in their texture. Now, if the circulation of the limb had depended on the arteries alone, it would not have ceased so completely.

Some time ago I attended, with Mr. Cusack, a patient from the North of Ireland, a young lady of rather delicate constitution, who was attacked at a certain hour every day, in a very singular way. The circulation in one of her legs seemed almost to cease, and the limb became remarkably pale and cold. This state of the limb would last for ten or twelve hours, and then an alteration took place ; the leg became hot and painful, and its temperature

became so disagreeable to the patient that she was obliged to keep the leg outside the bed clothes, and have it constantly wetted with cold water and vinegar. During all this time the action of the heart was natural, and the circulation of the rest of the body unaltered. Here we have a certain portion of a limb at one period of the day quite cold and pale, and at another extremely hot and painful. How can this be said to depend on any *vis a tergo*? The true explanation of the matter is, that it depends on a periodic affection of the nerves, capillaries, and smaller arteries of the part.

Before I conclude this interesting subject, I think it well to lay before you the views of some celebrated physiologists, which coincide with my own, and are strongly corroborative of the doctrines which I have for many years advocated. I shall first quote the opinions of Dr. Carpenter, the most modern and one of the most distinguished of our British physiologists, from the third edition of his Treatise on Physiology (page 568): their importance is sufficient apology for quoting them in this place.

"We now come to the last head of the enquiry into the powers which convey the blood through the capillary system—that, namely, which concerns the agencies existing in the capillaries themselves. Many discussions on this subject may be found in physiological writings, and it has so immediate a bearing on one of the most important questions in pathology—the nature of inflammation—that it deserves the fullest attention. The chief question in debate is the degree in which the capillary circulation is influenced by any other agency than the contractile power of the heart and arterial system;—some physiologists maintaining that this alone is sufficient to account for all the phenomena of the capillary circulation; and others asserting that it is necessary to admit some supplementary force, which may be exerted either to assist, retard, or regulate the flow of blood from the arteries into the veins. We shall first consider what evidence there is of the existence of any such force; and, when led to an affirmative conclusion, we shall examine into its nature. No physiological fact is more clearly proved than the existence, in the lower classes of animals, as well as in plants, of some power independent of a *vis a tergo*, by which the circulating fluid is caused to move through their vessels. This power seems to originate in themselves, and to be closely connected with the state of the nutritive and secreting processes, since any thing which stimulates these to increased energy accelerates the circulation, whilst any check to them occasions a corresponding stagnation. It may be convenient to designate this motor force by the name of *capillary power*, it being clearly understood, however, that no mechanical propulsion is thence implied. On ascending the animal scale, we find the power which, in the lower organisms is diffused through the whole system, gradually concentrated in a single part,—a new force, that of the heart, being brought into operation, and the circulation placed, in a greater or less degree, under its control. Still there is evidence that the movement of the blood through the capillaries is not entirely due to this, since it may continue after the cessation of the heart's action, may itself cease in particular organs when the heart is still acting vigorously, and is constantly being affected in amount and rapidity by causes originating in the part itself, and in no way affecting the heart. The chief proofs of these statements will now be adverted to.

"When the flow of blood through the capillaries of a transparent part, such as the web of a frog's foot, is observed with the microscope, it appears at first to take place with great evenness and regularity. But on watching the movement, for some time, various changes may be observed, which cannot

be attributed to the heart's influence, and which show that a certain regulating or distributive power exists in the walls of the capillaries, or in the tissues which they traverse. Some of these changes, involving variations in the size of the capillary tubes, have been already referred to; others, however, are manifested in great and sudden alterations in the velocity of the current, which cause a marked difference in the rates of the movement of the blood through the several parts of the area under observation. Sometimes this variation extends even to the entire reversion, for a time, of the direction of the movement, in certain of the transverse or communicating branches, the flow always taking place, of course, from the stronger towards the weaker current. Not unfrequently an entire stagnation of the current in some particular tube precedes this reversion of its direction. Irregularities of this kind, however, are never frequent when the heart's action is partially interrupted; as it usually is by the pressure to which the animal must be subjected in order to allow microscopic observations to be made on its circulation. Under such circumstances, the varieties in the capillary circulation, induced by causes purely local, become very conspicuous, for when the whole current has nearly stagnated, and a fresh impulse from the heart renews it, the movement is not by any means uniform (as it might have been expected to be), through the whole plexus supplied by one arterial trunk, but is much greater in some of the tubes than it is in others; the variations being in no degree connected with their size, and being very different at short intervals.

"The movement of the blood in the capillaries of cold-blooded animals, after complete excision of the heart, has been repeatedly witnessed. In warm-blooded animals this cannot be satisfactorily established by experiment, since the shock occasioned by so severe an operation much sooner destroys the general vitality of the system; but it may be proved in other ways to take place. After most kinds of natural death, the arterial system is found, subsequently to the lapse of a few hours, almost or completely emptied of blood; this is partly, no doubt, the effect of the tonic contraction of the tubes themselves: but the emptying is commonly more complete than could be thus accounted for, and must therefore be partly due to the continuance of the capillary circulation. Moreover, when death has taken place suddenly, from some cause (as, for instance, a violent electric shock) that destroys the vitality of the whole system at once, the arterial tubes are found to contain their due proportion of blood. Further, it has been ascertained that a real process of secretion not unfrequently continues after general or somatic death; urine has been poured out by the ureters, sweat exuded from the skin, and other peculiar secretions formed by their glands; and these changes could not have taken place unless the capillary circulation were still continuing. In the early embryonic condition of the highest animals, the movement of the blood seems to be unquestionably due to some diffused power, independent of any central impulsions: for it may be seen to commence in the vascular area, before the development of the heart; the first movement is towards, instead of from the centre, and even for some time after the circulation is fairly established, the walls of the heart consist merely of cells loosely attached together, and can hardly be supposed to have any great contractile power.

"The last of these facts may be said not to have any direct bearing on the question, whether the capillary power has any existence in the adult condition; but the phenomena occasionally presented by the foetus at a later stage appear decisive. Cases are of no very frequent occurrence in which the heart is

absent during the whole embryonic life, and yet the greater part of the organs are well developed. In most or all of these cases, however, a perfect twin foetus exists, in which the placenta is in some degree united with that of the imperfect one ; and it has been customary to attribute the circulation in the latter to the influence of the heart of the former, propagated through the placental vessels. This supposition has not been disproved (however improbable it may seem) until recently, when a case of this kind occurred, which was submitted to the most careful examination by an accomplished anatomist."

As the case alluded to, viz., that by Dr. Houston, is given in the preceding lecture, I shall not again introduce it, but pass on to the conclusions which Dr. Carpenter deduces from it. "It is evident," he says, "that a single case of this kind, if unequivocally demonstrated, furnishes all the proof that can be needed of the existence, even in the highest animals, of a capillary power, which, though usually subordinate to the heart's action, is sufficiently strong to maintain the circulation itself, when the power of the central organ is diminished. In this, as in many other cases, we may observe a remarkable power in the living system to adapt itself to exigencies. In the acardiac foetus, the capillary power supplies the place of the heart up to the period of birth, after which, of course, the circulation ceases for want of due aëration of the blood. It has occasionally been noticed that a gradual degeneration in the structure of the heart has taken place during life, to such an extent that scarcely any muscular tissue could at last be detected in it, without any such interruption to the circulation as might have been anticipated, if it furnished the sole impelling force.

"It is equally capable of proof, on the other hand, that an influence generated in the capillaries may afford a complete check to the circulation of a part, even when the heart's action is unimpaired, and no mechanical impediment exists to the transmission of blood. Thus cases of spontaneous gangrene of the lower extremities are of no unfrequent occurrence, in which the death of the solid tissues is clearly connected with a local decline of the circulation, and in which it has been shown by examination of the limb after its removal, that both the larger tubes and the capillaries were completely pervious : so that the cessation to the flow of blood could not be attributed to any impediment, except that arising from the cessation of some power which exists in the capillaries, and is necessary for the maintenance of the current through them.

"The influence of prolonged application of cold to a part, may be quoted in support of the same general proposition ; for, although the calibre of the vessels may be diminished by this agent, yet their contraction is not sufficient to account for the complete cessation of the flow of blood through them, which is well known to terminate in the loss of their vitality. The most remarkable evidence on this point, however, is derived from the phenomena of asphyxia, which will be more fully explained in the succeeding chapter. At present, it may be stated as a fact which has now been very satisfactorily ascertained, that if admission of air into the lungs be prevented, the circulation through them will be brought to a stand, as soon as the air which they contain has been, to a great degree, deprived of its oxygen, or rather has become loaded with carbonic acid ; and this stagnation will, of course, be communicated to all the rest of the system. Yet, if it have not continued sufficiently long to cause the loss of vitality in the nervous centres, the movement may be renewed by the admission of air into the lungs. Now, although it has been asserted that the stagnation is due to a mechanical impediment,

resulting from a contracted state of the lungs in such cases, this has been clearly proved not to be the fact, by causing animals to breathe a gas destitute of oxygen, so as to produce asphyxia in a different manner; the same stagnation results as in the other case.

“ If the phenomena which have been here brought together be considered as establishing the existence, in all classes of beings possessing a circulating apparatus, of a capillary power which affords a necessary condition for the movement of the nutritious fluid through those parts in which it comes into more immediate relation with the solids, the question still remains open as to its nature. That the capillaries possess a contractile power, far higher in degree than that of the large arteries, and more easily excited than that of the smaller, appears scarcely to admit of doubt; though to what it is due, may be reasonably questioned. It has been recently asserted by Schwann, that they possess the same kind of fibrous tissue in their walls as do the large vessels; and this cannot be regarded as improbable. It is not possible, however, that their contractility could have any influence in aiding the continuous motion of blood through them, unless it were exercised in a very different manner from that of which observation affords us evidence; for when we are microscopically examining the capillary circulation of any part, it is at once seen that the vessels present no obvious movement, and that the stream now rendered continuous by the elasticity of the arteries, passes through them as through unelastic tubes. The only method in which the contractility of the capillaries could produce a regular influence on the current of blood would be an alternative contraction and dilatation, or a peristaltic movement; and of neither of these can the least traces be discerned. Hence we should altogether dismiss from our minds the idea of any *mechanical* assistance afforded by the action of the capillaries to the movement of the blood. That the contractile coat of the capillaries has for its office to regulate the calibre of the vessels, can scarcely be doubted; but any general permanent contraction would only occasion an obstacle to the circulation,—as is shown by the effects of stimulating injections, which, if thrown into the vessels before their vitality has been lost, will not pass through the capillaries. It would appear, therefore, to be through their action on this coat that local stimuli occasion a contraction of the capillaries; their effect, however, is different from what might have been anticipated: for, instead of the capillary circulation being retarded, it is accelerated, at least until an abnormal condition results from their continued operation. Here again is another evidence that something different from mechanical power must be the agent that operates in all the foregoing cases.

“ It appears from the preceding facts that the conditions under which the power in question uniformly operates, may be thus simply and definitely expressed:—whilst the injection of blood into the capillary vessels of every part of the system is due to the action of the heart, its rate of passage through those vessels is greatly modified by the degree of activity in the processes to which it should normally be subservient in them. The current being rendered more rapid by an increase in their activity, and being stagnated by their depression or total cessation. Thus it seems that ‘the capillaries possess a *distributive* power over the blood, regulating the local circulation independently of the central organ, in obedience to the necessities of each part.’ If this be true, it is evident that the dilatation or contraction of the capillaries will only have a secondary influence on the movement of the blood through them. The former condition is usually an indication of diminished vital energy;

and when it is observed, it is almost invariably accompanied by a retardation or partial stagnation of the current; on the other hand, the application of a moderate stimulus, which excites the contractility, accelerates for a time the motion of the blood, by rendering more energetic that reaction between the fluids and the surrounding tissues, which is the condition that really has the most influence over the current."

In the *Edinburgh Medical and Surgical Journal* for July, 1842, you will find an admirable paper by Dr. Holland, of Sheffield, on "*The Forces by which the Blood is circulated in Capillary Vessels.*"

The author goes through all the arguments that have been advanced to prove that the circulation through these vessels is entirely due to the force of the heart, and he shows most satisfactorily how very irreconcilable such doctrines are with facts of every day occurrence. At the end of the paper he mentions an experiment, which I believe to be unobjectionable, and, if possible, even more conclusive than Dr. Houston's monster; it proves beyond doubt that the circulation through the capillaries is entirely owing to a vital property of these vessels, and independent of the influence derived from a *vis a tergo*. We shall allow Dr. Holland to speak for himself—"The umbilical vein conveys arterial blood from the placenta to the fœtus, the umbilical arteries convey venous blood from the fœtus to this organ. The origin and termination of these two classes of vessels in the placenta are involved in much obscurity. No direct connexion is traced between them. Whatever opinions may be held respecting the functions of this organ, or its relation to the uterus, it will scarcely be doubted that the vein terminates in capillaries, and that the arteries originate in the same kind of vessels. It is not our intention to examine the phenomena of fœtal circulation, but to allude only to one striking peculiarity, viz., the circulation of blood in the umbilical vein. This fluid is transmitted from the placenta to the fœtus without the aid of any propulsive organ. The capillaries are, indeed, the only sources of motive power shown to exist, and hence the placenta, separated from the uterus, appeared capable of determining the influence of capillaries, and the efficiency of it in urging the blood through the long capacious vein. To institute the experiment a placenta was procured, twenty minutes after separation from the uterus, and placed, with the exception of the cord, in a bladder, which was immersed in water at the temperature of 100° Fahrenheit. The free extremity of the cord, at the same moment, was elevated to an angle of 30°, resting on the edge of a glass, and at the distance of a foot from the placenta. At the commencement of the experiment no blood escaped from the vein, but in two minutes from the immersion it began to flow, and continued for about twenty minutes, and at this time it was found that the glass had received above one ounce. Here, then," continues Dr. Holland, "is an experiment, much less exceptionable in its character than any with which we are acquainted, demonstrating the power of the capillaries to carry on the circulation, not only in their own complicated net-work of vessels, but in larger vessels, and which ultimately terminate in a capacious vein; and the difficulty to the motion of the blood was intentionally increased by the elevation of the whole cord above the level of the placenta. Had this organ been immersed without the bladder, the absorption or imbibition of the water would have invalidated the experiment. The water is employed as an external stimulant for the purpose of maintaining, what may be conceived to be the natural temperature of the placenta.

"The flow of blood in this experiment, in our opinion, arises entirely from

the influence of the capillaries. The stimulus of the water causes the blood to excite them to contraction, and the escape of it is not opposed by any impediment. We cannot imagine that the experiment produces any important modification in the conditions of the blood. The water is not absorbed, nor is the temperature of it elevated above the heat of the body. The consideration of the circulation in this case is not complicated by circumstances acting *a tergo*, or in advance of the blood ; nor by the agency of respiration, or the struggles of an animal in torture or placed in a constrained position."

In Adelon's "Physiologie de l'Homme," vol. iii. p. 321, you will find the following remarks strongly corroborative of my view of the capillary circulation.

"In microscopical observations on living animals," he says, "we have seen the blood in the small vessels not only circulating from arteries towards veins through the capillary systems, with such phenomena that its progress could not be ascribed to the action of the heart, but often stopping, as if hesitating on the direction which it was to follow, and even retrograding with astonishing rapidity, and for a long time. On irritating a white part, the blood is observed all at once to flow into the capillary system of this part, and this system appears to exert a sort of suction or absorbing power on this fluid."

Such, gentlemen, are some of the arguments in favour of the supposition that the capillary vessels exercise a remarkable influence over the circulation. There are other proofs which I shall not touch on at present, as the more immediate business of the hospital prevents me from deviating any further from the path of strict clinical investigation. You may ask, perhaps, why I have entered on this subject at all, or why I have dwelt so long on matters which appear to possess only a mere theoretical interest. Because I am persuaded that much error exists with respect to the nature of the forces employed in carrying on the circulation, and because I think it of the most vital importance that you should be in possession of correct principles to guide you in the numerous emergencies attendant on the treatment of disease. The human body, in its development from a lower to a higher degree of organization, loses none of its character, it ascends, retaining in its more perfect development all that is possessed in an inferior state. In the first stage of its development it possessed a diffused nervous and vascular system. It then acquired small nervous strings and capillary vessels, and finally larger arteries, larger nerves, nervous centres, and a heart. In the same way its circulation commenced, beginning in the smaller vessels and extending to the larger, aided by the *vis a tergo*, but independent of it in a remarkable degree. From this view of the subject it follows that, in many cases of disease, we are to look to the forces which regulate the circulation of the part affected, and not to any *vis a tergo*, or propelling power of the heart. The physician and surgeon must study the life of each part in attempting to estimate its morbid conditions. It was a want of proper knowledge on this subject which led to so many errors in practice. Among these I may mention the treatment of Egyptian ophthalmia, in which it was thought necessary to drain the patient of blood for the purpose of subduing a mere local inflammation. In truth, the treatment of local inflammation, whether affecting external organs, as phlegmon, carbuncle, erysipelas, or internal parts, as pleurisy, peritonitis, &c., can never be properly understood, until the old doctrine which (by teaching that the *vis a tergo* was everything in inflammation) led to a too general use of venesection, has been laid aside and sounder opinions adopted.

FEVER.

LECTURE VII.

FEVER IN IRELAND.—EPIDEMIC OF 1847.

BEFORE entering on the treatment of Typhus Fever, I wish to make a few preliminary observations upon its nature and peculiar characters. In the first place, typhus fever is endemic in this country ; at no period, from the earliest records down to the present, has it been entirely absent—a fact of which you can easily satisfy yourselves by consulting our old authors, and by referring to the annual reports of the fever hospitals, established through different parts of Ireland. Fever, as I have said, is always endemic in Ireland, but occasionally for one year or one season, or a succession of years or seasons, it becomes much more than usually rife, and then it is said to be epidemic. In my report of the fever which devastated the west of Ireland in 1822, I advanced the opinion that such epidemics are consequent on great dearth of provisions, and their unwholesome quality. These are, no doubt, aggravating circumstances, but that they are not the sole or even the chief causes of typhus epidemics, is evident from what I have since frequently witnessed, viz., the occurrence of fever epidemics during years of plenty, of which 1826 was a remarkable example.

The epidemic fever of the last year (1847) might, to a superficial observer, appear an argument in favour of the former view, and both immediately previous to and after its commencement, this doctrine of the connexion between dearth of provisions and fever has been strongly advocated by some ; but, as I shall show a little further on, this, like most epidemic visitations, may be traced to other and more immediate causes.

That fever, in Ireland at least, depends on some general atmospheric change which affects the whole island simultaneously, independent of situation, aspect, height above the level of the sea, dryness or moisture of the soil, or any other circumstance connected with mere locality, is proved by the fact, that when typhus begins to increase notably in the Dublin hospitals, we may always rest assured that a nearly simultaneous increase of fever will be observed in Cork, Galway, Limerick, and Belfast, as I have on more than one occasion ascertained by writing to the physicians of fever hospitals in these cities.

For a considerable period there was a great tendency among physicians to refer the origin of typhus, and almost every variety of fever, to malaria, or unwholesome emanations from the soil, produced by the decomposition of vegetable matter. In Ireland facts do not bear out this hypothesis ; for, as already stated, when an epidemic of fever has become established, it breaks out simultaneously in situations the most different, and in some where no

such emanations can be supposed to exist. Thus, I have seen a whole family affected in the telegraph, situated at the summit of Killiney, a mountain formed of bare granite,—and indeed the granite and mountain districts beyond Rathfarnham, Tallaght, and Killikee, supply the Meath Hospital with its worst cases of typhus. The malarious origin of fever in general, has, I may remark, become much less probable since the publication of the official documents connected with the sickness and mortality of the British troops in the Colonies, and from which, as Major Tulloch reports, it clearly appears that fevers of the most malignant character frequently arise in places presenting, to all appearance, a combination of circumstances most favourable to the exclusion of malarious influence, while fever is never endemic in other stations, where all the reputed sources of malaria exist together.

There can be no doubt that in Ireland, as in other countries, the effects of cultivation and drainage on the health of the inhabitants are very remarkable, and I myself have witnessed several exemplifications of the improvement of the public health thus effected. Formerly ague was of rather common occurrence in some marshy districts in the immediate vicinity of Dublin, and consequently when I was a pupil, cases of intermittent fever were constantly to be met with in the hospitals; now the low grounds have been drained, and thus the production of ague has been entirely arrested. It may be cited as a proof of the former frequency of ague in Dublin, that when sulphate of quina had been discovered in France, we in Ireland were among the first British physicians who verified its *anti-aguish* powers; and Dr. Barker and I, each of us, published tables of many cases of ague cured in hospital by that remedy. If I am not mistaken, the first dose of sulphate of quina ever administered in Ireland was by myself, at the Drumcondra Fever Hospital.

It is now generally admitted that drainage greatly improves the health of the public; and this opinion has lately received additional support from the investigations of Mr. Chadwick, relative to the sanatory condition of the labouring population, from whose work the following passage is extracted:—

“In considering the circumstances external to the residence which affect the sanatory condition of the population, the importance of a general land drainage is developed, by the inquiries as to the causes of the prevalent diseases, to be of a magnitude of which no conception had been formed at the commencement of the investigation: its importance is manifested by the severe consequences of its neglect in every part of the country, as well as by its advantages in the increasing salubrity and productiveness wherever the drainage has been skilful and effectual. The following instance is presented in a report from Mr. John Marshall, jun., the clerk to the union in the Isle of Ely:—

“It has been shown that the Isle of Ely was at one period in a desolate state, being frequently inundated by the upland waters, and destitute of adequate means of drainage: the lower parts became a wilderness of stagnant pools, the exhalations from which loaded the air with pestiferous vapours and fogs. Now, by the improvements which have from time to time been made, and particularly within the last fifty years, an alteration has taken place which may appear to be the effect of magic. By the labour, industry, and spirit of the inhabitants, a forlorn waste has been converted into pleasant and fertile pastures, and they themselves have been rewarded by bounteous harvests. Drainage, embankments, engines, and enclosures have given stability to the soil (which in its nature is as rich as the Delta of Egypt), as well as salubrity to the air. These very considerable improvements, though carried

on at a great expense, have at last turned to a double account, both in reclaiming much ground and improving the rest, and in contributing to the healthiness of the inhabitants. Works of modern refinement have given a totally different face and character to this once neglected spot; much has been performed—much yet remains to be accomplished by the rising generation. The demand for labour produced by drainage is incalculable; but when it is stated that where sedge and rushes existed but a few years since we now have fields of waving oats and even wheat, it must be evident that it is very great.

“On reference to a very perfect account of the baptisms, marriages, and burials, in Wisbeach, from 1558 to 1826, I find that in the decennial periods of which 1801, 1811, and 1821 were the middle years, the baptisms and burials were as under :—

	Baptisms.	Burials.	Pop. in 1801.
1796 to 1805	1,627	1,535	4,710
1806 to 1815	1,654	1,313	5,209
1816 to 1825	2,165	1,390	6,515

“In the first of the three periods the mortality was 1 in 31; in the second, 1 in 40; in the third, 1 in 47; the latter being less than the exact mean mortality of the kingdom for the last two years. (See Registrar-General’s Second Report, p. 4, folio edition.) These figures clearly show that the mortality has wonderfully diminished in the last half century, and who can doubt but that the increased salubrity of the fens produced by drainage is a chief cause of the improvement?”

Evidence of a similar nature is given with reference to various parts of England.

In the reports given from the parish ministers in the statistical accounts of Scotland, the effects of drainage upon the general health of the population are strongly marked in almost every county, expressed in notes made from an examination of the returns. Sutherland—Parish of Rogart: “Healthy, and a good deal of draining.” Far: “Subject to no particular disease; a deal of draining.” Ross and Cromarty—Alness: “Dry and healthy; climate improved by drainage.” It is to be understood, that drainage appears to form the essential part of agricultural improvement which is connected with the improvement of health. Thus, the notes from another parish in the same county, Kilmuir, Wester, and Suddy, state it as “healthy; great improvement; scarcely an acre in its original state.” Rosmarkie: “Healthy; agriculture much improved.” Elgin—New Spynie: “Healthy; much waste reclaimed, much draining.” Alves: “Dry and healthy, well cultivated; wood sometimes used for drains.” Banff—Deckford: “Healthy, and people long lived; much draining.” Kincardine—Fordoun: “So much draining that now no swamps; formerly agues common, now quite unknown.” Angus—Carmylie: “Health improved from draining.” Kinross—Kinross: “Agues prevalent sixty years ago in consequence of marshes, now never met with.” Oswell: “Ague prevailed formerly, but not since the land was drained.” Perth—Methven: “The north much improved by draining.” Redgorton: “Healthy; no prevailing disease; ague was frequent formerly, but not since the land has been drained and planted.” Moneydie: “Healthy; an immense improvement by draining.” Abernethy: “Since the land was drained, scrofula rare and ague unknown.” Monzie: “Healthy; a good deal of land reclaimed.” Auchterarder: “Much draining, and waste land reclaimed;

climate good." Muckhart: "Great improvement in agriculture; ague formerly prevalent, not so now." Muthill: "Healthy; much draining, and cultivation extended." And similar statements are made from the rural districts in all parts of the country.

Ague is the most remarkable disease engendered by a marshy state of the country, and consequently the disappearance of ague forms the most easily noted and most striking change in the health of the inhabitants produced by drainage; hence ague is so often mentioned in the above extract. There is no doubt, however, that drainage not merely removes ague, but is beneficial to the public health, in removing various other maladies and derangements of the health which are observable among the inhabitants of marshy districts; and the remark made with respect to *Abernyte*, "*since the land was drained, scrofula rare*," was, no doubt, founded on accurate observation.

Numerous other statements, corroborative of the preceding, might be easily brought forward, but though ready to allow the general improvement in the health of the public resulting from drainage, improved habits of cleanliness and increased comforts, yet I cannot admit that in Ireland we are to expect any notable diminution of continued fever from the operation of these causes. In making this statement, you are aware that I am opposing the usually prevalent opinion. The grounds for my dissent have been partly explained to you already, for, according to my observation, the increase or diminution of fever in Ireland arises from some unknown general atmospheric, or, if you will, *climatic* influences, quite independent of locality; and, consequently, the most improved and thoroughly drained towns and country districts are quite as liable to epidemics of typhus as are the most neglected and marshy parts of our island. The causes which occasion these epidemics are, on the other hand, in no way connected with the notable variations in the seasons, for with us the ravages of typhus are observed sometimes in dry, sometimes in rainy seasons; and its epidemics appear quite uninfluenced either by the cold of winter or the heat of summer. Other complaints are obviously dependent on the physical characters of the seasons, and I have made the curious observation, that whenever the weather in Dublin becomes dry and steady, the public becomes unhealthy. This singular fact admits, perhaps, of explanation; for so habituated is the Irish constitution to rapid changes of temperature, wind, and rain, that it is placed, as it were, in an unaccustomed, and therefore unnatural position, when the weather is dry and steady.

Be this as it may, the fact is undoubted, that fever is neither so prevalent nor so fatal in any of the western kingdoms of Europe as in Ireland. This opinion has been long entertained by physicians, and its truth is fully confirmed by the following extract from Surgeon Wilde's valuable report upon the table of deaths published in the Report of the Commissioners of the Irish census in 1841.

"The total deaths from fever in Ireland during the ten years included between June, 1831, and June, 1841, afforded by the census returns, amount to 112,072—in the proportion of 100 males to 86·14 females, being one death in every 10·59 of the mortality from all causes, and one in 3·4 of the deaths of the total epidemic class of diseases.

"The provincial summaries afford the following proportions of the mortality from fever, compared with the total deaths, in the different districts, and the hospitals and institutions, &c.

PROVINCES.	RURAL DISTRICT.		CIVIC DISTRICT.		HOSPITALS, &c.		TOTAL.	
	Epidemic.	General.	Epidemic.	General.	Epidemic.	General.	Epidemic.	General.
LEINSTER ..	1 in 3·25	1 in 13·02	1 in 7·23	1 in 19·55	1 in 1·09	1 in 2·52	1 in 3·21	1 in 10·85
MUNSTER ..	— 3·48	— 11·22	— 6·71	— 17·55	— 1·24	— 2·2	— 3·59	— 10·68
ULSTER ..	— 3·39	— 11·59	— 4·53	— 12·03	— 1·1	— 2·27	— 3·32	— 10·81
CONNAUGHT..	— 3·27	— 9·54	— 6·97	— 15·64	— 1·2	— 3·13	— 3·46	— 9·79
DUBLIN CITY	—	—	1 in 8·24	1 in 21·36	1 in 1·1	1 in 2·69	1 in 3·01	1 in 7·68
CORK CITY ..	—	—	— 6·77	— 16·75	— 2·02	— 3·77	— 4·49	— 10·51
BELFAST ..	—	—	— 4·01	— 10·55	— 1·06	— 1·93	— 2·5	— 6·14
GALWAY ..	—	—	— 7·27	— 15·98	— 1·06	— 1·38	— 4·91	— 10·45
IRELAND ..	1 in 3·36	1 in 11·28	1 in 6·41	1 in 16·78	1 in 1·14	1 in 2·4	1 in 3·4	1 in 10·59

From this document it follows that the mortality from fever in Ireland amounts to a fraction less than one-tenth of the whole mortality, whereas, in London the fever deaths do not amount to more than one-fiftieth of the total deaths. This difference becomes more striking from considering that deaths in Dublin from fever are actually nearly double the deaths from the same cause in London. The last census made the population of London amount to one million nine hundred thousand, whilst that of Dublin is two hundred and thirty-three thousand.

The admirable papers of Dr. Cowan have thrown much light upon the comparative frequency of fever in different parts of Britain, and his tables prove that Glasgow is more unfavourably situated, as regards fever, even than Dublin; for in 1835, 1836, 1837, the deaths from fever alone were 412, 841, 2,180, being, in the relation to the mortality from all diseases, one in 15·6, 10, and 4·7 annually: but as the year 1837 was remarkable for a fearful epidemic, this mortality is over the average, for Dr. Cowan in another place shows, that while in Glasgow, with a population of 200,000, the annual average of fever, deduced from seven years, ending with 1836, has been 1842 cases; in Manchester, with a population of 228,000, it has been for the same period only 497; in Leeds, with a population of 123,000, only 274; and in Newcastle, with a population of 58,000, so little as 39. These numbers bring out, in striking contrast with Ireland, the immunity from fever enjoyed by large English towns, and corroborate the remark already made, that the eastern and central parts of Britain, enjoying a climate more different from that of Ireland, so likewise are much freer from fever than the western parts of Britain, whose climate approximates more to the Irish.

It is curious, that in those towns in England which have greater intercourse with Ireland, as Liverpool, Manchester, Bristol, typhus predominates more than in others not similarly circumstanced. It was on this account that Dr. Lombard* concluded that maculated typhus fever was imported into England and Scotland by Irish labourers, who go over in such numbers every year to reap the harvest. But from the statistical reports of Dr. Cowan and others, it appears that, as regards Scotland, this explanation is anything but satisfactory, and it seems more probable that the west of England, Scotland, and Ireland, in which the climate is almost the same, possess the same combinations of circumstances which produce typhus. Nothing,

* *Dublin Medical Journal*, vol. x.

indeed, can be more remarkable than the facility with which a simple cold (which in England would be perfectly devoid of danger) runs into maculated fever in Ireland, and that, too, under circumstances quite free from even the suspicion of contagion—in truth, except when fever is epidemic, catching cold is its most usual cause.

Much has been said and written about epidemics among cattle being simultaneous with human epidemics, and we have the testimonies of Homer and Herodotus in support of the popular belief. I am quite sure that various diseases, such as ague, remittent and bilious fever, &c. &c. may be brought on by miasmata, which, emanating from the earth, may likewise produce epidemics among cattle. Mr. Chadwick's work contains the following striking statement :—

“In the course of inquiries as to what have been the effects of land drainage upon health, one frequent piece of information received has been that the rural population had not observed the effects on their own health, but they had marked the effects of drainage on the health and improvement of the stock. Thus the less frequent losses of stock from epidemics are beginning to be perceived as accompanying the benefits of drainage in addition to those of increased vegetable production.”

Dr. Edward Harrison, in a paper in which he points out the connection between the rot in sheep and other animals, and some important disorders in the human constitution, observes :—

“The connection between humidity and the rot is universally admitted by experienced graziers; and it is a matter of observation, that since the brooks and rivulets in the county of Lincoln have been better managed, and the system of laying ground dry, by open ditches and under-draining, has been more judiciously practised, the rot is become far less prevalent. Sir John Pringle informs us, that persons have maintained themselves in good health, during sickly seasons, by inhabiting the upper stories of their houses; and I have reason to believe that, merely by confining sheep on high grounds through the night, they have escaped the rot.

“The late Mr. Bakewell was of opinion that, after May-day, he could communicate the rot at pleasure, by flooding, and afterwards stocking his closes, while they were drenched and saturated with moisture.”

The sanatory effects of road-cleansing—to which house-drainage and road-drainage are auxiliary, is, it appears, not confined to the streets in towns and the roads in villages, but extends over the roads at a distance from habitations on which there is traffic. Dr. Harrison—whose testimony has been cited on the subject of the analogy of the diseases of animals to those which affect the human constitution—in treating of the prevention of fever or the rot among sheep, warns the shepherd that, although he may provide drained pasture and avoid “rotting places” in the fields, all his care will be frustrated if he do not avoid, with equal care, leading the sheep over wet and miry roads with stagnant ditches—which are as pernicious as the places in the fields designated as “rotting-places.” He is solicitous to impress the fact, that the rot, i. e., the typhus fever, has been contracted in ten minutes, that sheep can at “any time be tainted in a quarter of an hour, while the land retains its moisture and the weather is hot and sultry.” He gives the following instance, amongst others, of the danger of traversing badly drained roads. “A gentleman removed ninety sheep from a considerable distance to his own residence. On coming near to a bridge which is thrown over the Barling's river, one of the drove fell into a ditch and fractured its leg. The shepherd

immediately took it in his arms to a neighbouring house, and set the limb. During this time, which did not occupy more than one hour, the remainder were left to graze in the ditches and lane. The flock were then driven home, and a month afterwards the other sheep joined its companions. The shepherd soon discovered that all had contracted the rot except the lame sheep; and as they were never separated on any other occasion, it is reasonable to conclude that the disorder was acquired by feeding in the road and ditch bottoms." The precautions applicable to the sheep and cattle will be deemed equally applicable to the labouring population who traverse such roads.

With reference to this question I may remark, that although I have carefully watched the progress of fever in Ireland for more than a quarter of a century, I have not been able distinctly to connect its epidemics with any epizootic disease,—true it is, that occasionally typhus fever is prevalent at a time that some fatal epidemic affects horned cattle, pigs, and sheep, and from such an occurrence, an incautious reasoner might be led to assume a natural connexion between the two epidemics as both proceeding from the one cause. A more protracted series of observations will, however, dispel this illusion, for he will then see that the connexion is only accidental. Of this the years 1841 and 1842 afforded a remarkable example; for during both the cattle of Ireland were decimated by a most malignant epizootic, while during the same period I never recollect a greater immunity from typhus: in fact, the wards of the Meath Hospital were often destitute of a single specimen of that disease.

Before leaving this part of the subject, I will, as I promised in the commencement of this lecture, proceed now to take a short review of the fever epidemic of last year (1847), more especially of the causes by which it was produced; and conclude with a summary of my opinions.

Having made some enquiries into the prevalence of fever in Ireland in 1837–38, which I published at length in the 14th volume of the *Dublin Journal of Medical Science*, I was led to the conclusion, that the chief causes of the epidemic diffusion of fever in Ireland must be of a very general and not of a local nature, for we find the most exact agreement between results observed in cities far asunder, and widely differing in aspect and position. It must have been an influence coextensive with the island, and acting everywhere with a nearly equal degree of intensity, which brought about this coincidence, and made fever attain its maximum and minimum at the very same time in various places. It is well to keep in mind that the establishment of the existence of this epidemic influence (which in Ireland, even when at its minimum, is but too productive), does not preclude us from admitting that many other causes of minor importance may in Ireland give rise to typhus; among these we may reckon catching cold, fatigue, mental emotions, and contagion. And the result of last year's epidemic fully bears out this conclusion.

A vast amount of mischief was produced by the attempt made to connect fever epidemics with a deficiency of food; and the great diffusion, the rapid spread, and the unusual mortality which characterised the fever of 1847, must be to a great extent ascribed to the prominence which from the very first was given to famine, as an exciting cause of typhus fever in Ireland. The text put forth so authoritatively, "if there be no famine, there will be no fever," prevented proper attention from being paid to the real causes which produce and promote the spread of epidemic diseases; and the means adopted to supply a deficiency of food were, as I shall now show, singularly productive of those causes.

Want of a sufficiency, or food of an unwholesome or improper character, predisposes the human frame to disease by its debilitating effects on the system, and thus individuals become more susceptible to the contagious influence of epidemics when they exist; but I cannot admit that either cause is sufficient to generate an epidemic. Over-crowding, deficient ventilation, and filth, are causes which in themselves give rise to epidemic diseases; and when to these are added the debilitating effects of famine, we have a combination of circumstances extraordinarily calculated to promote the diffusion of a contagious disease previously in existence, and, as I have already said, typhus fever is always endemic in Ireland.

Owing to the failure of the potato crop and other concomitant circumstances, there was great want of food in this country in 1845 and 1846. In the former year there was no remarkable increase in the number of cases of typhus fever which are at all times to be met with in Ireland, and active measures were taken to provide the people with employment and a sufficiency of food. The measures adopted had the effect of congregating together large masses in the open air in a cold wet season, and of over-crowding the poor-houses and hospitals throughout the whole country to a most frightful extent.

"Famine, also," to quote the words of Dr. Lalor in his graphic description of this epidemic as it prevailed at Kilkenny, "drove crowds of half-famished people into our large and more wealthy towns and cities, where the means of procuring food were more abundant, and the wretched and over-crowded lodging-houses, in which this class of persons found shelter, became the foci of contagion, and of the worst forms of fever. The foulness of the atmosphere was augmented by the accumulation of filth and heaps of manure and human ordure in our lanes and alleys, to an enormous and most pernicious extent; partly owing to the prevalence of bowel complaints; partly to the dearness and dearth of food, which absorbed all the time and means of our people in providing for present subsistence; and partly to the inability or unwillingness of the farmers to expend money in purchasing this manure for the cultivation of a crop so precarious as potatoes. It was in the neighbourhood of such lanes and alleys too that fever prevailed chiefly and most fatally amongst the wealthier classes."*

The congregating or crowding together of people, either in the open air or in buildings, has been at all times productive of disease. Thus in the year 1812, in the province of Gujerat, West Hindostan, the people crowded into the towns in consequence of the great destitution which prevailed, when an epidemic broke out amongst them which nearly decimated the people; but the epidemic was of small-pox, and not fever. But never, perhaps, in the history of the world was such a fearful commentary on the effects of the *entassment* of individuals witnessed as in Ireland, during the year 1847. The newspapers and periodicals of the day teemed with illustrations of the fact, *that the Irish epidemic of 1847 had its origin in the congregating together large masses of people at public works and at depots for the distribution of food, and in the overcrowding the workhouses.* I shall now proceed to bring before you some of these illustrations.

Let me first refer you to the report of the Poor Law Commissioners, published in May, 1847. It contains some fearfully interesting particulars respecting the progress of disease and mortality in Ireland. It appears, on reference to the report, that while the total number of deaths which occurred in the union workhouses in Ireland, for the week ending the 4th April, 1846,

* *Dublin Quarterly Journal of Medical Science*, vol. v. p. 30.

amounted to 159, the total number who died in the week ending the 3rd April, 1847, amounted to 2,706. A more fearful fact still is the large increase of sickness, and the large proportion of fever. The number of inmates had a little more than doubled, the numbers being on the 4th of April, 1846—50,861; and on the 3rd April, 1847—106,888; but the numbers in the hospitals increased from 8,121 to 28,239, while the numbers in the fever hospitals increased from 864 to the fearful number of 8,931. The most alarming fact disclosed by these returns is the rate of mortality which existed, and its rapid increase from the previous November. In April, 1846, the weekly rate of mortality was 3 in every 1000 inmates. In November it showed a decided tendency to rise. During the four weeks of December it ran up from 7·4 to 8·6, then to 10·3, and then to 11. In January, 1847, it was 12·2 the first week, 13·3 the last. In February it was 17 the first week, 19·5 the last. In March it ranged from 22 to 20, and in April it rose to 25—twenty-five out of every thousand died in the last week for which there is a return.

In one of the local papers published about this time I find the following observations:—

“Fever has been slowly and steadily increasing in Cork for some months, and any man who calmly peruses the medical report on the state of the Cork workhouse, in February last, will feel surprised, not that fever has spread with such fearful rapidity in Cork, but that the tempestuous sweep which now appals its affrighted citizens was so long stayed. In the workhouse the inmates were put three, and four, and five in a bed, and in the convalescent ward of the hospital there were forty-five beds for one hundred and twenty persons! What result could be expected from such a state of things save that which followed?”

In other workhouses also we find the same effects to have occurred wherever they were overcrowded. It was so in Dublin, in Fermanagh, in Galway, in Limerick, in Waterford, &c. The Kilmallock workhouse, built for 800 inmates, contained on the 27th of February nearly 1,500 within its precincts. The consequence was that fever and dysentery became fearfully prevalent, and the inmates, struck with terror, began to leave the house, when the Poor-law Commissioners’ sealed order against further admissions was received. That the overcrowding was the cause of the disease in this last instance there can be no doubt, for when the inmates were reduced to 1,000, in the month of April, the number of sick rapidly diminished.

The following extract which I read from a letter received in May, 1847, from Dr. Dillon, surgeon to the Co. Mayo Infirmary, and one of the poor-law guardians, is strong testimony on this subject:—“The Poor-law Commissioners have given sad proof of their ignorance of medical police, and total incompetency to direct or be connected with the sanatory state of the country—wherever their houses were in full operation, there existed disease, and *only there*. We would not open our doors and congregate poverty and filth, when we had not funds to meet its expense; we were dismissed, and held up to odium; but, thank God, we have spared human life by our decision, and have kept this locality more free from disease than any other union in the kingdom where the poor-law was in full operation; at the same time, we fed our poor by private subscriptions, and lost fewer from want of food than any other place.”

It is not my intention to enter into a detailed historic account of this epidemic. I am chiefly anxious to bring forward the additional proofs which it affords of the causes by which the epidemic outbreaks of typhus fever are

produced in this country, and of the contagious character of the disease. No town in Ireland suffered more from this epidemic than Cork, and in no town were these causes more rife. I have now shown you to what an extent the workhouse of that city was overcrowded; and as a consequence the number of victims to fever and pestilence was frightful. From the 22nd of December, 1846, to the 24th of April, 1847—four months, 2,130 persons died in the buildings comprising the union workhouse. The great increase set in about that time, and continued to the middle of March, when the curative measures of the board began to take effect, and a gradual though somewhat fluctuating decline soon took place. The following are the deaths for each week and month from December the 27th:—2nd January, 59; 9th, 59; 16th, 60; 23rd, 60; 30th, 91; total for January, 329. 6th February, 128; 13th, 164; 20th, 146; 27th, 168; total for February, 606. 6th March, 143; 13th, 183; 20th, 171; 27th, 175; total for March, 672. 3rd April, 159; 10th, 128; 17th, 132; 24th, 104; total to the 24th April, 523; making in all, as above stated, the almost incredible number of 2,130. In the month of May 359 died, and in June a little more than 200. From this date, when the numbers in the workhouse were much reduced, and other sanatory precautions taken, the number of sick and the proportionate mortality rapidly diminished.

Numberless are the instances in which fever has been the issue of crowding patients too closely. An eminent surgeon, the late Mr. Pearson, when attached to the Lock Hospital, London, uniformly observed that fever prevailed in the establishment when more than a certain number of patients were placed in any of the wards. Repeated observations of this kind induced him afterwards to limit the number of beds in each ward, and the consequence was a complete absence of fever from the place.

But there were other causes also in operation in Cork, which promoted the spread of disease there. The following extract, which I read from a Cork newspaper of the day, presents us with a view, you might suppose, of a plague-stricken town in the middle ages, and not of the second city in Ireland, affected with fever in the middle of the 19th century:—"The incursion of rustic paupers into the city still continues unabated, the only change being that it is less observable, as they wait on the outskirts of the town till dark, when they may be seen coming in droves, the bed-clothes strapped to the shoulders of the father, while the children carry pots, pans, jugs, old sacks, and other articles. On an average, about three hundred of these miserable creatures come into the city daily, who are walking masses of filth, vermin, and sickness. They squat on straw in the principal streets, and teem in the lanes and alleys, fruitful sources of contagion and disease; and if the officers of health are not active and expeditious in cleansing and whitewashing, it is to be feared that pestilence will commit frightful ravages in those densely peopled and ill-ventilated parts of the town. The deaths in the city, including the workhouse, jails, and other institutions, as well as the desultory mortality in the streets from fever and starvation, average at present about 500 weekly. Although the Cat Fort Hospital was opened on Monday, with accommodation for 200 patients, it is quite insufficient for the numerous fever cases seeking relief, many of the patients lying on straw in the street leading to the hospital. Another hospital capable of receiving 120 patients is about to be opened in the same neighbourhood. Whole families are now to be seen in the public thoroughfares, some stretched on straw in the sun, others lying under blankets, all disgusting-looking objects, and living on the

charity of the passengers. Several batches of them were to be seen on Camden-quay during the week. Although exhibiting every appearance of outward wretchedness, many of them are impostors, as they have sums of money on their persons, and on being referred to the food depôts for relief, they indignantly refuse it. The mistaken charity of the public keeps those people within the precincts of the city, on which they have no claim whatever; and they should be sent to their own homes, as relief committees and soup depôts are now generally established throughout the country. On Wednesday a countrywoman deserted her child, which was a pitiful object, half naked, and full of smallpox, and left it in the middle of Patrick-street as a legacy to the citizens."

I cannot forbear reading for you here some judicious observations which bear strongly on the subject I have been discussing, from the *Westminster Review* for April, 1847:—

"It is most lamentable to see that in the eagerness of impulse to apply the principle of relief, there has been, and continues to be, a total disregard of the mode. Pestilence has followed in the footsteps of benevolence, and yet death itself has awakened no suspicion of error in the aid we have given to its fearful devastations. We are told of a mortality in Irish workhouses at the rate of 70,000 per annum; but can it be pretended, with even the appearance of plausibility, that this mortality is the result of destitution? Are not the inmates of workhouses at least fed, and warmed, and clothed? Is there a member of the Health of Towns Association, who could not tell the Government that this heavy rate of mortality can only be the consequence of over crowding and defective ventilation? And is such over crowding and defective ventilation to continue under a new poor-law, in the name of charity, and not to be denounced as the agency of slaughter? Let us note here a fact stated in the reports of Mr. Twisleton, that as late as the 17th of October, 29 only of the workhouses in Ireland, out of 130, were full, or nearly full; and that in the remaining 101, there was still accommodation for 34,000 inmates more than had been received. It was not till the Government expenditure upon public works had created a gigantic army of 500,000 men to swallow up all the resources of the country, that the continued rise in the price of provisions, and the desertion of families by the able-bodied, drove the feeble portion of the whole population to the workhouses as a last refuge. A last refuge indeed!—there to sicken and die. . . . And let us note again the corresponding manner in which out-of-door pestilence followed out-of-door relief, injudiciously administered. A noble lord, reading in the papers frightful tales of deaths by 'starvation,' of which he is at first incredulous, rushes from Oxford to Skibbereen, to learn the real facts by personal observation. He is taken to a cabin containing thirty inmates, all dead or dying. He sees the death-cart, and dead bodies thrown into it by callous assistants with indecent haste. He does not inquire whether plague in a hovel could, by possibility, have arisen from other causes than want. He does not see in Skibbereen a town of the better class, well situate, comparatively prosperous, but become a great centre for relief works—a focus for English charity—and therefore suddenly overwhelmed by an influx of pauperism from the surrounding districts, swarming into every kennel for nightly shelter. He heeds nothing of the evidence of sanatory reports—not even of the old and familiar history of the black hole of Calcutta. He reflects not that to extend the system may be to deepen the abyss of misery it has opened. He demands no modification of eleemosynary aid, but only more of that which has been

afforded; and, struck with horror at that which he has witnessed, he hastens back to England—to augment the horrors!”

Another mistake also made was the sudden change from a deficient and unwholesome diet to a full supply of nutritious food, which the paupers were subjected to on their admission into the workhouses. Any general change from habitual and hereditary diet, even to better, proves unwholesome, and renders the human frame more susceptible to disease. In Cork, during the epidemic, they were obliged to form an encampment for the troops, as the recruits, who joined half-famished, suffered much, and fell into bad health from the change of diet. From a somewhat similar cause, some years ago, one of the finest regiments in Sweden, consisting of Dalecarlians, lost nearly half its men. Having been ordered to the capital from their own district, the sudden change of diet from their accustomed black bread and peas to the better and more nutritious food of Stockholm so completely undermined their health, that, to save the few who escaped disease, their usual food was restored to them.

The observations I have already made are all proofs, too, of the contagious character of this fever; but its rapid spread to Liverpool and Glasgow—the two cities in Great Britain in most immediate communication with Ireland—and its subsequent progress to British America and New York, by means of the emigrant ships, can leave no doubt on this subject.

In the beginning of May, 1847, Lord Brougham presented a petition from Liverpool to the House of Lords, stating that 103,000 Irish paupers were accumulated in that town within the last six months; and soon after we find that the Irish typhus fever broke out there in all its virulence, causing very great mortality. Thus, according to the report of the Registrar-General of Mortality in England, for the quarter ending June 30th, 1847, we find that in Liverpool, in the district of St. Martin, the deaths were 661, being 200 more than in the corresponding quarter of the previous year—typhus and diarrhoea being the prevailing diseases; in Great Stewart-street district, the deaths were 1080, a very great increase of mortality, “owing to the *Irish fever* which raged amongst the poor.” In Dale-street district, “deaths 809, an increase over the previous quarter of 230, entirely owing to increase of fever amongst the lower order of Irish—280 were from fever, and 40 from small-pox.” In St. Thomas district, “the deaths (598) are very considerably above the average this quarter, in consequence of the very alarming increase of fever.” In Mount-pleasant district, “deaths 1,007, exceed the former quarter by 499, owing entirely to the great influx of Irish paupers into Liverpool.” In Islington district the deaths were 466, an increase of 193 over the corresponding quarter of 1846; and in St. George’s district “the number of deaths (188) exceeds that of any preceding quarter, and shows an increase over the corresponding quarter of 1846, of 88.” And in the return for the quarter ending the 30th of September, 1847, the registrar-general makes the following observations on the state of this great city:—“In itself, one of the unhealthiest towns of the kingdom, Liverpool, has for a year been the hospital and cemetery of Ireland. The deaths registered in the four quarters of 1846 were 1,934, 2,098, 2,946, and 2,735; in the three quarters of 1847, ending in September last, 3,068, 4,809, and 5,669! [to this I may add the return, since published, for the last quarter of 1847, 3,725, making the total mortality for that year 17,271]. The population of Liverpool was 223,054 at the last census. It is impossible to represent more correctly than is done by the short notes of the Registrars, the piteous spectacle which this great town

presented—with the floating lazarettos on the Mersey—the workhouses crowded with destitute paupers—the three large sheds, which will hold 300 persons, nearly full of patients at the present time, and the fever getting more prevalent among the upper classes.”

From Liverpool the typhus fever rapidly spread throughout all the large towns in England, and it was chiefly in the *over-crowded* towns of the manufacturing districts, Manchester, Leeds, Birmingham, Sheffield, &c. and in London, that it prevailed most extensively and the mortality was greatest.

To Glasgow it was imported directly from Ireland, and there, too, the mortality was very great, the proportion of deaths far exceeding the cholera year. The mortality tables for that city for the year ending December 31st, 1847, show that the number of deaths was 18,886, an increase over 1846 of 7,250 deaths!—the great mortality arising, it is stated, from the frightful immigration of poor Irish, from whom fever spread throughout the community.

The number of emigrants who left this country, in the year 1847, for America is calculated to have been more than double that of the previous year, and, as a necessary consequence, the ships were all not only crowded but *packed* with passengers. There was scarcely a single ship in which typhus fever did not break out on the passage, and the mortality, as we might expect, was still greater than on land. From authentic documents now before me, it would appear that the number of Irish who emigrated to British North America, in 1847, was at the lowest computation 74,539; of these 5,293 are reported to have died on the passage; 8,563 were admitted into the quarantine hospital at Grosse Island, of whom 3,452 are said to have died—an average of 40 per cent.; and of those who were taken into the marine and emigrant hospital at Quebec, or who had procured lodgings in that city up to the 9th of October, there died 1,041—an aggregate of 9,786 deaths up to the period of the survivors leaving for Montreal, an average of over 12 per cent. From the account which we have had of the losses of individual ships, I am quite sure that this statement is anything but over-drawn. The “Ceylon,” with 257 steerage passengers, had 30 deaths and 115 in fever on her arrival. The “Loosthank,” with 349 steerage passengers, had 117 deaths, and only 20 escaped fever. Three vessels taken together lost 275 passengers. The return of the health-officers at New York shows an aggregate of 957 deaths at sea on board of vessels coming from European ports, and likewise that three-fourths of the number admitted into the quarantine hospital (most of them Irish), have been taken from British vessels.

Convincing proofs these facts of the causes of Irish typhus fever, and of its contagious character! In fine, I may state that from an attentive consideration of the last and of previous epidemics of fever in Ireland, I have arrived at the following conclusions. 1st. That epidemics of fever may occur in Ireland without any scarcity of food,—as proved by the history of many of our past epidemics. For information on this subject I would refer especially to the commentary of Mr. Wilde on the Government census of 1841, and published in the Commissioners’ report. 2nd. That a scarcity may coincide with an epidemic. 3rd. As an epidemic of fever occurs at short intervals, and famine is unfortunately not less frequent, it consequently follows that an epidemic tendency to fever must frequently coincide with a visitation of famine. 4th. In 1847, as no epidemic had occurred for several years, the chances of coincidence were greater still. 5th. The contagious character of the typhus fever of Ireland was further proven by the late epidemic. Barristers and solicitors returning from circuit brought the fever to town with them. I had at one

time five from Galway under my own care in Dublin; and Mr. Rynd informed me that in the convict depôt all the cases of fever came from the country. 6th. The fact of fever not often spreading in families in this city when brought from the country, proves that the causes which acted in the country were such as I have assigned—*entassement*, bad ventilation, filth, &c.

While this sheet is going through the press, we have had another practical proof of the operation of the causes I have in this lecture mentioned as productive of typhus fever in Ireland. The gaol of Galway was crowded with prisoners in the beginning of this year (1848), forced indeed to receive nearly double the number it could contain with due attention to the health of its inmates. As a consequence, fever broke out amongst those confined there, and is now spreading among the inhabitants of the town. This fact needs no comment !

LECTURE VIII.

GENERAL OBSERVATIONS ON FEVER.—CLASSIFICATION.—CONTAGION.

I have already stated that when a person gets a feverish cold in Ireland, it is more apt to pass into continued fever than it is in England: this is especially the case when fever prevails as an epidemic, in which case the transition into fever takes place on account of one or other of the following causes. First—the patient had been exposed to contagion, whose effects might never have become perceptible, had not his constitution been assailed by the feverish cold. Secondly—in many cases there has been no previous exposure to contagion, and yet a feverish cold will finally determine the breaking out of fever, no doubt under the action of the prevailing epidemic influence. Thirdly—individuals who are debilitated by excesses, night-watching, and bodily fatigue are of all others the most liable to slide from feverish cold into fever: if, in addition to these causes, mental anxiety, or intellectual labour have been harassing the individual, the fever generally assumes a most dangerous form, being attended with want of sleep, raving, and often violent delirium early in the disease.

The well known fact that individuals have sickened on the spot on smelling the effluvia from a patient's person or evacuations has led to the supposition that the contagion of fever influences the system through the nerves; and in support of this opinion many refer to Prussic acid, which, *they say*, kills by its action on the nerves, and before it has been absorbed.

Another class of inquirers asserts that the blood is the seat of the first morbid change, and with equal confidence refers to the action of vegetable poisons, which they assert never produce any effect on the system until they enter the circulation.* In the present state of our knowledge it is quite impossible to determine in what manner the poison acts, and, happily, it is equally unimportant. This much is certain, that changes in the nature of the secretions, as in the sweat, sputa, mucus of the tongue, feces and urine, take place simultaneously with changes in the blood, and they are all the result of some *common unknown cause*. Of course once the blood is changed, the secretions become more rapidly altered, and when the secretions are changed, the blood is more quickly deteriorated; but the knowledge we thus obtain leads to no satisfactory explanation or practical result.

Lately the investigations of chemists respecting the composition of the blood in fever and other diseases, have excited hopes that we are on the eve of discovering some more secure basis for our practice, founded on the analysis of that fluid. I must confess that, however I applaud these efforts of science, I entertain no hopes that they will be followed by the expected beneficial consequences: for, except the good effected in diabetes mellitus, by diminish-

* Blake's Experiments, *Edinburgh Med. and Surg. Journal*, vol. liii. p. 49. And Müller's *Elements of Physiology*, by Baly, 2nd edition, vol. i. p. 262.

ing the quantity of starch in the bread such patients eat ; and the advantage derived from medicines and articles of diet, in certain derangements of the urinary functions, such as in the phosphatic and lithic diatheses ;—except in these instances, I know of no improvement in practice for which we are indebted to chemistry : and even here the result was obtained not by an examination of living, but of secreted fluids ; and, in truth, it is vain to look for remedies founded on chemical principles, when these principles cannot even approximate to affording us an explanation of the mode of action of our best established medicines. When chemistry reveals why tartar emetic vomits, jalap purges, or opium causes sleep—when chemistry detects palpable changes in the blood produced by these remedies, then we may begin to hope that this science can conduct us still further, and may even, by disclosing the morbid changes which the blood undergoes in disease, become useful to us in searching for remedies capable of counteracting and even preventing these changes.

The different *theories of fever*, as they have been called, have much and often injuriously affected practice. The speculations of Brown, Cullen, Clutterbuck, Broussais, Rasori, Armstrong, and our Indian physicians, have successively introduced the stimulant, diaphoretic, general antiphlogistic, leeching, tartar emetic, mercurial plans ; each of which has in its turn been pushed to a most deleterious excess. For my own part, I have long abandoned every hope of being able to frame any satisfactory theory of fever, and therefore confine myself altogether to a diligent study of its symptoms, watching how they are grouped, and in what order they follow each other, and observing closely the effects of treatment on their progress ; and in my choice of remedies I am guided either by experience, or an analogy derived from the action of medicines, in other diseases which present the greatest similarity to the complications that occur in fever.

Fever in this island exhibits a great variety of character, and even during the same epidemic remarkable differences are observable, as appears from the subjoined summary, taken from Cheyne and Barker's valuable account of the epidemic fever of 1817 and 1818, vol. i. p. 425 :—

“Delirium ferox was observed in Limerick, and another symptom indicating a determination of blood to the head, namely, hemorrhage from the nose, which, in some instances, took place to a very considerable extent.

“As to the organs chiefly affected in the progress of the disease, some variety seemed to exist. In most instances the brain has been reported as the organ which suffered chiefly. In some places, as at Ennis, the lungs were not at all affected during the early periods of this epidemic fever ; but in other places the lungs next to the brain principally suffered ; this was observed in Listowel. The same remark was made at Tralee, and Dr. Bishop observed at Kinsale that the lungs were frequently affected in children. At Ennis it was noticed as a peculiarity in the fever, that profuse perspiration occurred in its earlier stages without any relief to the patient ; and it was remarked at Waterford, as stated in the report at page 251, that copious perspiration often afforded no relief. Yellowness of the skin and tunica adnata of the eyes was frequently noticed at Cork. The head and biliary system were more than usually affected.

“As the disease advanced, it was observed in most or all parts of the province, that eruptions of different kinds, either closely allied to or varieties of those termed petechial, very generally accompanied it. In some instances the eruption was papular, or a motley appearance of the skin, or a rash some-

what resembling the measles showed itself. At Cork, Dr. M. Barry remarked that, in the species of fever which he termed synochus, petechiæ seldom occurred earlier than the fourth or fifth day ; but his observation, if it does not express it directly, at least implies that their occurrence was frequent. *They were generally of a bright red colour, sometimes small, at other times large.* He did not consider them dangerous, nor find it necessary to abstain from those measures of depletion which were useful when high excitement prevailed. In a communication from Clonmel, Dr. Fitzgerald states that petechiæ occurred in four cases out of five. At Fermoy, petechiæ appeared very generally among the poor. At Kinsale, a red rash, we believe of the kind above mentioned as resembling that of the measles, was common, and petechiæ were more inclined to be red than brown in that neighbourhood. At Listowel, petechiæ were so common that Dr. O'Connell did not see six cases of fever unattended by a petechial eruption, which often appeared early in the disease. The frequency of petechiæ was noticed also at Waterford, as well as of the eruption resembling measles already mentioned. The frequency of an eruption resembling measles was noticed at Bandon by Dr. Clarke and Dr. Jenkins. At Clonmel petechiæ were common even amongst children, in whose cases this eruption was not indicative of peculiar danger, but, on the contrary, often attended a mild disease. It was observed in the neighbourhood of Tramore, and we believe the same to have happened in every part of Ireland, that one member of a family had petechiæ and aggravated symptoms of typhus, whilst the relatives in the same room had fever in the mildest form. In many instances, particularly in the more advanced stages of the epidemic, the lungs were observed to suffer, as at Fermoy, Listowel, and Mallow, according to the authorities already quoted ; but both at Cork and at Ennis, places very remote from each other in this province, the lungs, at least at the commencement of its epidemic progress, were but rarely affected in this fever.

"As the epidemic advanced, gastric symptoms were observed, and mention has been already made of the frequency at this time of dysentery, which, in many parts of Munster, kept pace with fever. Dr. Grogan, of Limerick, remarked that pains resembling those of rheumatism were common ; and he also noticed a symptom, which there is reason to believe was not unfrequent in most parts of Ireland, namely, that the tongue, which in most febrile diseases is white or altered in colour and other appearances, in many cases exhibited no morbid change, and remained moist and clean during a great part of the disease. From the same authority we learn that increased heat of the surface, which is generally considered peculiarly characteristic of fever, was, in many instances at Limerick, altogether wanting ; this absence of the usual febrile heat is observed in the worst kinds of fever."

Farther on, the report states that "Dr. Milner Barry of Cork, in his account of the fever in that city, relates that the disease presented itself under different forms, which he arranges under the following heads—I. Synochus ; 2. S. Cephalica ; 3. S. Pulmonica ; 4. S. Hepatica ; 5. S. Gastrica ; 6. S. Enterica ; 7. Typhus Gravior ; 8. Typhus Mitior ; 9. Febricula. From the arrangement which Dr. Barry here adopts, it is evident that a determination to particular organs was at Cork, as at other places, of frequent occurrence."

For more than twenty years I have in my lectures advocated the doctrine, that morbid anatomy had not served to reveal the cause of fever, which I looked upon to be an *essential* disease, or, to use the words of Fordyce, "*Fever is a disease which affects the whole system ; it affects the head, trunk, and extremities ; it affects the circulation, absorption, and the nervous system ; it*

"affects the body, and it affects the mind ; it is therefore a disease of the whole system, in the fullest sense of the term. It does not, however, affect the various parts of the system uniformly and equally, but, on the contrary, sometimes one part is more affected than another." "This excellent view of fever seems to be borne out completely by modern pathology, and particularly the last part, where he says that in cases of fever one part is more affected than another. We have, for instance, cerebral fevers, nervous, bilious, gastric, and catarrhal fevers, by which it is to be observed, we do not mean to imply that there is nothing more than simple disease of the brain, or nerves, or liver, or bowels, or respiratory system, but that in each of these fevers disease predominates in some particular part. So that when we speak of these fevers we speak of such a fever as Fordyce has described, in which one part of the body is affected more than the rest."*

I am happy to find that the views I have so long entertained in opposition to the great majority of writers both in Britain and on the Continent are now generally acknowledged to be correct, as will appear by the following passage taken from the able essay on continued fever by Dr. Christison in the "Library of Medicine."

"*Anatomical characters of continued fever.*—The pathological anatomy of continued fever remained, till lately, in a very crude and unsatisfactory condition. But no other topic has attracted so much attention during the last five and twenty years, or has been investigated with more success, so far as the accumulation of facts goes. Whether the result has been hitherto beneficial in reference either to pathological doctrine or medical practice, is a question which admits of some doubt. A very great variety of morbid appearances has been indicated as occurring in fever. Of these many are plainly incidental, because they do not by any means present themselves regularly. Others, however, have been held to be invariable ; and consequently authors have sought for the nature and essence of fever, in the local morbid action which gives rise to such appearances. On taking into account the general result of the observations of all pathologists of credit, it seems impossible to avoid the conclusions, that no morbid appearance is invariable except congestion of internal organs ; that every other pathological fact which has been observed is not constant, and is therefore the effect of a secondary disease ; and that, in all the observations hitherto made on the pathological anatomy of fever, we must be content with discovering its consequences, not its causes. The information which has been amassed is important in a practical point of view, as turning the attention of practitioners to the necessity of studying and treating those secondary affections, which in various circumstances are the occasion of suffering, danger, or death. But it does not seem to throw much light on the real essence of fever ; and by being rashly assumed to furnish that light, it has led to grave theoretical and practical errors."†

In fact, gentlemen, the knowledge we possess of the pathology of typhus fever is of a *negative* character. Pathology teaches us what typhus is *not*, rather than what it *is* ; it shows us that it is neither cerebritis, meningitis, pneumonia, pleurisy, gastritis, or enteritis, for *it* may exist without any of these, and *they* may exist without typhus fever ; but it also shows that one or other of these lesions frequently arises in the course of that fever, and these require special attention.

* Stokes' *Practice of Physic*, American Edition, page 409.

† *Library of Medicine*, vol. i. p. 105.

It is difficult to classify the different varieties of fever that are observed in this city. The following are the most remarkable of the distinct varieties that have come under my notice :—

1st, Simple continued fever, without maculæ, or any notable determination to particular organs. 2nd, Continued fever, without maculæ, with determination to some organ. 3rd, Continued fever, with maculæ. 4th, Continued fever, accompanied *from the very beginning* by gastric derangement and epigastric tenderness. 5th, The last mentioned species, but in a more intense form, having black vomit and yellowness of the skin superadded. 6th, Continued fever, with petechiæ.

I have observed each of these varieties of fever constituting epidemics, which lasted for longer or shorter periods : but with us the dominant type of epidemics is the maculated form. This species, too, confers more immunity upon the sufferers than any other variety of fever, and in this respect, as well as in its well marked eruption, it approaches in character to the exanthemata : like the exanthemata, too, this species of fever seems to be the most contagious.

Concerning contagion, the physicians of Ireland and Scotland are nearly agreed in attributing that quality to fever. The fever wards of the Meath Hospital are by no means crowded, and are both well ventilated and cleanly, while the building itself is placed in the most salubrious part of the vicinity of Dublin, being built upon the site of Dean Swift's garden ; and yet it almost invariably happens that when a patient, labouring under any other acute, or any chronic disease, is admitted into a fever ward, he gets fever in the course of a fortnight, or even sooner. This happens the more surely if the patient is placed in the immediate vicinity of a maculated case. Among the pupils who attend the hospital, the greater number are sooner or later attacked by fever, and the same is true of the porters, laundry maids and nurses.

Moreover, in the recent epidemic with which this country was afflicted, the contagious character of the fever was, as I have already shown, peculiarly manifested ; and especially by the great mortality which it caused among the members of the medical profession.*

I have great pleasure in recommending Dr. Christison's observations on this subject, and shall here quote briefly some of the arguments advanced by him in support of the contagious nature of the disease. In the first place, he says that in districts thinly inhabited fever is generally very rare, whereas in large towns, where numbers of people are living in a crowded state, typhus fever is never absent. When it becomes epidemic in a large town, it never bursts forth with impetuosity, like the diseases of *undoubted miasmatic origin*, but extends gradually, and always the more slowly the larger the city, so that many months may elapse before it reaches its full height. It then begins to decline, retires as gradually as it commenced, and finally resumes its natural condition, affecting only a few individuals here and there, and at distant intervals.

At the commencement of an epidemic, fever is found to spread at first, not by scattered unconnected cases occurring at a distance from one another, but by slow degrees around one or more invaded localities as foci ; first creeping from one individual to another of a family, then from family to family—ac-

* For much most valuable information on this head I would refer to Drs. Cusack and Stokes' laborious and trustworthy essay in the fifth volume of the *Dublin Quarterly Journal of Medical Science*, new series.

cording to their proximity, relationship, or general intercourse, and at length to the surrounding population promiscuously.

But a further argument of very great weight may be drawn, even from the very violations of this general rule. For sometimes the disease is seen suddenly to arise, and gradually to spread in parts of a town where it had not previously existed ; and this in concurrence with the arrival of the disease by importation from a previously invaded locality.

“ Another argument, more powerful perhaps than any other, and upon which alone the doctrine of the *communicability* (Dr. Christison used this word in preference to *contagion* or *infection*), of fever might be rested, is, that in circumscribed localities, inhabited by crowded bodies of men, fever is observed invariably to spread among the healthy, when it is introduced to a great extent from without, but never materially at any other time. This is a general mode of expressing the history of such institutions as infirmaries and fever hospitals. During the last twenty years the Infirmary of Edinburgh has been made the receptacle of a large proportion of fever cases in three epidemics, which have lasted between three and four years ; and there have been two intervals varying from three to five years in duration. During the intervals, when fever cases from without were few, fevers originating within the hospital were extremely rare among any classes of individuals attached to its service. But, during the prevalence of the several epidemics, fever abounded in every department of its service : physicians, clinical clerks, general servants, nurses, washerwomen, apothecary’s assistants, all suffered more or less, and some to an excessive degree. The same facts were observed even more remarkably in an institution which was, during the same interval, occasionally occupied as a fever hospital. In three epidemics it was made use of for this purpose ; and at various periods during the last twenty-five years it has also been occupied, when fever did not prevail epidemically in the city, by crowded bodies of men ; first by soldiers as a barrack, then as a retreat for some hundreds of people who were turned out of their houses in winter by an extensive fire, next as a quarantine house during the prevalence of cholera ; and for some years past, during the worst epidemic of fever which has yet prevailed in the city, it has been occupied by about 300 of the very lowest of the community, namely, as a house of refuge for vagrants and other destitute persons. Now, on each occasion, when it was occupied as a fever hospital, the people on service in the institution suffered to an extraordinary degree, scarcely a single individual escaping an attack, who remained a moderate length of time in it. But on other occasions fever was either absolutely unknown, or the cases were rare and distant, and easily referable to the particular manner of life of the individuals composing the population of the establishment. It is also worthy of notice, in reference to both chains of facts here mentioned, that neither around the infirmary, nor around the late fever hospital, did fever ever prevail to any material extent during any of its epidemic visitations.”*

It is unnecessary to allude to the many instances of fever occurring amongst nurses, porters, and clinical clerks in different fever hospitals, facts which strongly bear out the view that typhus fever is eminently contagious.

Another interesting point connected with the contagion of fever has lately been inquired into, viz. to determine the particular period of the disease when this character is most remarkable.

* *Library of Medicine*, vol. i. p. 156.

Dr. Perry, of Glasgow, was the first, I believe, who advanced the opinion, that the stage of convalescence was the most infectious in typhus fever. He considers typhus fever as a true *exanthema*. He says, "I have for some years entertained the opinion, founded upon an extensive series of observations, that contagious typhus is an *exanthematous disease*, and is subject to all the laws of the other exanthemata; that, as a general rule, it is only taken once in a lifetime, and that a second attack of typhus does not occur more frequently than a second attack of small-pox, and, judging from my own experience, less frequently than a second attack of measles or scarlet fever.

"From numerous observations and experiments, I am satisfied that it is not contagious *before the ninth day*, perhaps not till a later period of the disease. Among many circumstances which establish this opinion, I may mention one experiment which I made upon a pretty extensive scale. The fever wards of the Glasgow Royal Infirmary are each capable of containing twenty patients. The beds are arranged in two opposite rows, and are pretty near each other. While the patients are in the acute wards, they are not allowed the use of their clothes, though they may be able to sit up; they are, therefore, almost constantly confined to bed, excepting when rising to stool; and there is about one close-stool to every three patients. Into the fever-house are admitted cases of measles, scarlet fever, and small pox; and patients are very frequently sent in labouring under bronchitis, pneumonia, erysipelas, and other local inflammatory affections. I found by experience, that when the latter class of patients were sent to the convalescent ward, where they necessarily mixed with the others, almost all those who had not a previous attack of typhus fever were either seized with it before leaving the house, or returned soon after their dismissal labouring under it; the period intervening between the time of their being sent to the convalescent ward and the attack never being less than eight days. Although means were taken to keep those recovering from small pox, scarlatina, &c., in a separate room from those convalescent from typhus, the rooms being adjoining the non-intercourse was incomplete, and the result was, that these diseases occasionally spread among the typhus convalescents, and the convalescents from small-pox and scarlatina caught typhus. In consequence of these observations, I adopted the practice of not sending, as formerly, to the convalescent wards, those patients affected with inflammatory diseases, unless I ascertained that they were secured against the disease by having had a previous attack of typhus; but kept them in the acute fever wards till they were so far recovered as to go to their own homes, and the result was (and the practice was continued for several months), that not one of those detained in the acute wards caught the disease while there, or returned with it afterwards. From the above and other observations, I have adopted the opinion that typhus, like measles, small pox, &c., is chiefly spread during the period of convalescence. In the paper already noticed, I have mentioned the desquamation of the cuticle which usually takes place when a patient is convalescent from typhus. Do the fine scales thrown off in this state contain the poison which, by adhering to the clothes and hair of the patient, are carried about with him, and, being rubbed off, are, while floating in the atmosphere, applied to the mucous surface, or inhaled by a susceptible recipient, in whom it produces, after a certain time, the specific disease?"*

I must here acknowledge, although frequent mention has been made in this lecture of petechial fevers, particularly in the passage cited from Cheyne

* *Dublin Medical Journal*, vol. x. p. 385.

and Barker's work respecting the fever of 1817 and 1818, and although, in compliance with the generally received opinions, I have set down this fever as a distinct species, that I myself have never seen petechial fever epidemic in Ireland. I was clinical clerk at Sir Patrick Dun's Hospital during the great epidemic of 1816 and 1817. The eruption consisted of maculæ, somewhat resembling measles, frequently dark and livid in bad cases; but, except in a very few instances indeed, there were no true petechiæ. In 1822 I had the charge of a large district in the town of Galway, when fever was committing great ravages; then, too, the eruption was maculated. I cannot account for so many witnesses testifying the contrary to this statement, except by supposing them to have been misled by appearances; for it must be confessed that, although *true petechiæ* are rare, *true flea-bites* are common in Ireland. Most observers, too, seem to have been very inaccurate in their phraseology, as is evident from the above quotation from Cheyne's work. Dr. Barry plainly uses the word *petechiæ* very loosely—"They were generally of a bright red colour, sometimes small, at other times large." Surely this is quite descriptive of maculæ, but totally inapplicable to petechiæ; and the same may be said of the other observers, most of whom, I verily believe, overlooked the true eruption, and noted down flea-bites as petechiæ! Connected with the question first raised by Dr. Perry, whether maculated typhus should be considered as an exanthema, the fact is deserving of notice, that children exhibit the eruption much less frequently than adults, although they are quite as liable to the fever when it is epidemic. This fact is the more remarkable, because in measles, scarlatina, &c.—the true exanthemata—the eruption is more constant in children than in adults.

LECTURE IX.

THE GENERAL TREATMENT OF FEVER.

I SHALL to day proceed to speak of the general treatment of fever ; and in the first place I may observe that we are now at a point of time possessing no common interest for the reflection of medical observers.* It is nearly two years since my attention was first arrested by the appearance of maculated fever, of which the first examples were observed in some hospital patients from the neighbourhood of Kingstown. This form of fever has lasted ever since, prevailing universally, as if it had banished all other forms of fever, and being almost the only type noticed in our wards. Within the last four days, however, a change appears to have taken place. Scarcely any cases of maculated fever have been admitted within the last fortnight, and the majority of fever patients at present under treatment are free from cutaneous eruption so frequently observed during the last two years. The cases which we have recently admitted present no spots or maculae, and have been termed, perhaps improperly, simple typhoid fever. And here permit me to observe, that it would be very wrong to conclude, from this circumstance, that our recent cases are of a more favourable description than those which preceded them ; the disease, it is true, appears to have lost a character which is always looked upon as bad and unfavourable, but it may be just as dangerous a modification of fever as the eruptive typhus. During the predominance of the latter form, all cases without maculae were in general simple and free from danger ; but it is probable that this is not the case at present. There are two cases of this non-maculated typhus in the female ward, which are of an extremely doubtful character, and in which it would be difficult to predict the result. Indeed, were I to make any prognosis, I should say that the chances, if not against them, are at least very fairly balanced.

Now, gentlemen, as it appears we have come to a change, and that we may have to treat a new modification of fever, it behoves us to be extremely vigilant. I invite you to watch and study, with the closest attention, the cases of fever which come before you. Let us, in the first place, endeavour to ascertain whether we have seen the close of one epidemic, and are now at the commencement of another. The number of cases of simple typhoid fever has, you perceive, increased in a very remarkable manner, and the number of cases of eruptive typhus has become remarkably scarce. But there is another and a more important reason why we should study these cases with all due diligence and attention. They may be the first examples of a new epidemic, and every new epidemic, as it has its peculiar characters, so has it its peculiar treatment. We cannot follow the same track which we have pursued for the last two years—we cannot apply our remedies with the confidence of experience—we must now strike into a new path, and for some time our practice must

* The beginning of this Lecture was delivered during the session 1836-7.

be tentative and experimental. It was only after a good deal of experimental observation that we were able to arrive at a plan of treatment adapted to meet the exigencies of the maculated form of fever: and it is very probable that this new fever may prove at first extremely difficult to manage; and it may be some time before the diminished rate of mortality shall show that we have at length discovered its true character, and the remedies best calculated to arrest its progress.

Let me now direct your attention to some practical points connected with the treatment of the maculated fever which has prevailed for the last two years, and which has spread to a very considerable extent in this city and its environs, attacking alike the upper, middle, and lower classes of society. It is not my intention to enter into a detailed history of the origin and progress of this fever, its varieties, symptoms, and pathological phenomena; my purpose is to furnish you with a brief but comprehensive outline of its treatment, and of the remedies which have been found most successful in its removal, as well as the most appropriate time and mode for their application.

Having made these general observations, I may observe, in addition, that in the whole range of human maladies there is no disease of such surpassing interest and importance as fever; and I cannot dwell too much on the necessity of your applying most attentively to the study of its pathology and treatment. If you compare the mortality from fever with that resulting from any other disease in this country, you will be struck with the overwhelming fatality of this affection, and will readily admit the inestimable value of a thorough knowledge of its nature and treatment. Recollect, too, that fever is a disease which numbers among its victims persons chiefly in the prime of life, and during the most active and useful stage of existence,—fathers and mothers, persons who are the ornament or the stay and support of their families, the intellectual, the industrious, the efficient,—those whose lives are most valuable to their friends,—and to society. This gives an additional interest to the study of fever, and should stimulate you to endeavour to arrive at a correct knowledge of its nature and treatment.

And here let me observe, that there is nothing more untrue than the assertion, that the treatment of fever is a matter of indifference. It has been the custom to look upon every plan of treating fever as idle and absurd, and until very lately there were many persons in this country who believed that patients recovered, not from having had the advantage of treatment, but from goodness of constitution or some favourable accident; and it was usual with such persons to appeal to the experience of Dr. Ratty, who in recording the history of the epidemics of his own time (1741), observes “the poor, abandoned to the use of whey and God’s good providence, recovered, while those who had generous cordials and great plenty of sack perished.” And, indeed, I must admit that the treatment of some of the cases of fever which I witnessed when a student, would seem to justify the quaint and sarcastic observation of Dr. Ratty. At that period, whether it was from bad treatment or from what has been termed the *nimia diligentia medici*, it is a fact that the maximum of mortality was among the rich, and that those who were most attended to died most speedily. In the epidemics of 1816, 1817, 1818, and 1819, it was found by accurate computation, that the rate of mortality was much higher among the rich than among the poor.* This was a startling fact, and a

* “The rich are less frequently affected with epidemic fevers than the poor, but more frequently die of them. Good fare keeps off diseases, but increases their mortality when they take place.”—*Fletcher’s Pathology*, p. 27.

thousand different explanations of it were given at the time; but I am inclined to think that the true explanation was, that the poor did not get so much medicine, and that in them the *vis medicatrix* had more fair play.* I could appeal to the practice of those times in proof of this opinion, and as we go along I shall have an opportunity of alluding to this part of the subject again, and contrasting the practice of the present day with that which was generally followed thirty years ago. If you look to Dr. Cheyne and Dr. Barker's Synopsis of the plan of treatment employed by the physicians of those days, you will be prepared, from a mere inspection of it, to admit that it was at least as hard to escape the physician as the disease. Since that period our practice has greatly improved, and things are much changed; the preponderance of fatal cases is now to be found among the poor; and the mortality among the rich, or those who have proper medical advice from the commencement, is not one third of that which is found among the indigent, who are generally neglected at the commencement of the disease. I am therefore fully prepared to deny that, in the present state of medical knowledge, our practice is a matter of indifference; on the contrary, there is no disease in which diligent attention and skilful treatment are more frequently successful than in fever, nor is there any affection of equal importance in which our therapeutic means are more efficient and valuable.

Now, when called on to treat a case of fever, there are several things which require your attention. In the first place, you should examine the state of the family arrangements. This is a matter which men are apt to overlook or treat as a matter of indifference, but in my mind it is of no ordinary importance, and should be always attended to. You should never, if possible, undertake the treatment of a case of fever where the friends or relations of the patient supply the place of a regular fever nurse. The mistaken tenderness of relatives, and their want of due firmness, presence of mind, and experience, will frequently counteract your exertions and mar your best efforts. Affection and sorrow cloud the judgment, and hence it is that very few medical men ever undertake the treatment of dangerous illness in the members of their own families. The sympathy which a nurse should have for her patient should be grounded on a general anxiety to serve, and a strict sense of duty, as well as a laudable desire of increasing her own reputation; it is, in fact, a sympathy analogous to that which should actuate a physician. Again, it will not do to have a nurse who has been usually employed in other diseases; your assistant must be a regular fever nurse, and the man who undertakes the treatment of a long and dangerous case of fever without such an assistant will often have cause to regret it. I could mention to you many cases illustrative of the truth of this assertion. I could tell you that, where I have permitted the continuance of the services of one of the family, or of a common nurse, I have been almost invariably annoyed and disappointed. I now make it a general rule to refuse attending any dangerous and protracted case of fever without a properly qualified nurse.

There are many nurses who are extremely attentive, but inexpert and injudicious, and their ill-judged attentions are frequently prejudicial to the

* "On the whole, the mildest and simplest treatment seems to be the most generally successful, and the result of a certain Lady Bountiful's practice forms its best commentary. She begins with an antimonial emetic; the patient is washed every morning with soap and water, gets every second day half an ounce of sulphate of magnesia, on the seventh day a blister to the neck, and if necessary some diluted wine, this seldom and sparingly; of 120 in fever treated after this mechanical plan, not one died."—*Cheyne and Barker's Report*, p. 444.

patient. A fever nurse has a vast deal in her power ; if an enema is to be administered, the patient will be much less disturbed and annoyed than if it were given by an unskilful person. The mere handling of a patient—the moving of him from one bed to another—the simple act of giving him medicine or drink—the changing of his sheets and linen—the dressing of his blisters—and a thousand other offices, can be performed with advantage only by an experienced nurse. Always bear in mind that it is of the utmost importance to economize the patient's strength in fever. The very act of lifting him up, or moving him from one side to another, tends to produce exhaustion. In the advanced stages of fever, the services of a properly qualified nurse are inestimable. Then there is the moral management of the patient, and this is an office which no one can undertake unless qualified by experience, and a correct knowledge of the habits of persons labouring under such forms of disease. Every one admits the value of moral superintendence in the treatment of the insane. Now there are very few patients who are not in a state analogous to insanity, for a longer or shorter period, during a course of typhus fever. There is a necessity for moral management in fever as well as in insanity, and this is understood only by an experienced nurse. Friends or relatives are seldom found capable of discharging this office. If they chance to discover, from the physician's remarks or questions, the weak points of the patient's case, they generally contrive to let him know them in some way or other. If the patient is restless, for instance, the ill-judged anxiety of his friends will most certainly prevent him from sleeping. They steal softly to his bed, draw the curtains, move the candle so as to make the light fall on his eyes, and wake him perhaps at the moment he is settling down to rest. If he happen to take an opiate, and that they are aware of the nature of his medicine, they inform him of it, and his anxiety for sleep, conjoined with their inquiries, prevents its due operation. Hence, when you prescribe an opiate, you should not in any case say anything about it ; and it should not be administered in such a way as to lead the patient or his friends to expect decided benefit from it. It is only where I have to deal with prudent persons, that I break through my rule of concealing both the nature of the medicine and the results which I expect from its operation. One of the best ways of giving an opiate is to administer it in the form of an enema. The patient's attention is then turned away from the consideration of loss of rest—he supposes that the enema is to act on his bowels, and in expecting a motion he drops asleep. You will often, too, succeed in producing sleep in this way, where you would fail in bringing it on by an opiate administered by the mouth. Another recommendation attached to this mode of exhibiting opiates is, that it can be employed in cases of delirium, where the patient obstinately refuses to swallow any kind of medicine. Let me give you here another caution. Do not let the patient know the situation or extent of his danger, however you may feel bound to act in reference to these matters towards his relatives or friends. If you apprehend mischief in the brain, do not commence by examining the head, or putting your questions in such a manner as to lead him to suspect the seat and nature of the affection. The same remark may be applied to the examination of the thorax and abdomen.

In the next place, when treating a case of bad typhus, do not think that it will be sufficient to see your patient once a day. But you will say, perhaps, that our hospital patients here do very well, and yet they are visited only once in the twenty-four hours. True—but then we have experienced nurses to look after them at all hours ; we have the valuable surveillance of our

apothecary, Mr. Parr; we have the attendance of the resident pupils, and of the gentlemen who take charge of the cases. You see, then, that they do not depend on a solitary visit. How often has Mr. Parr, or the resident pupil, found it necessary to change the treatment adopted at the morning visit? How often have the remedies of which we had only given a hint in the morning, been actively and energetically employed before the close of the day; and how often have lives been saved by the valuable attentions to which I have just alluded? No one should attend a case of fever without having proper medical assistants. My practice, in general, is to visit my fever patients two or three times a day; and, when I have a bad or a dangerous case to manage, I always have a competent medical assistant to stay by the patient and watch every change of his malady.

I do not know how they manage this matter elsewhere, but in this city we have so many zealous, intelligent students, so many young medical friends, and so many well-educated apothecaries, that we are never at a loss for an assistant. This fact is, I think, a sufficient answer to the objections put forward by Dr. Johnson, in the *Medico-Chirurgical Review*. He says that tartar emetic is a two-edged sword—an agent powerful alike for good or evil, and in the administration of which no ordinary circumspection is demanded. All this I am willing to admit; there is no remedy capable of producing more mischief when abused, but, when properly watched, it is, I am confident, the means of saving many valuable lives. He says, also, that Dr. Graves cannot give that share of attention to his patients which the employment of such a remedy demands. He is quite mistaken on this point. I am never at a loss for some skilful person to remain with the patient, watch the operation of each dose, and modify or change it according to circumstances. The want of proper assistants may be elsewhere an objection to the administration of tartar emetic, but this objection does not hold good with respect to Dublin.

One or two more observations of a general nature. Some persons have such a terror of foul air in cases of fever, that you will find all the windows in the house thrown open, not even excepting those of the patient's bed-chamber, and wherever you turn you are sure to meet with a current of air. Now, this is an unnecessary practice, likely to entail disease on the family, and local inflammation on the patient. The bed-room of a patient labouring under fever should be well aired, but without what is termed thorough air; and it should, if possible, be a quiet back room, away from the street. In the next place, it should be sufficiently large to hold two bedsteads conveniently; and you should order the attendants to have two well-aired beds in readiness, from one of which the patient should be changed to the other every twelve or twenty-four hours. You can scarcely have an idea of the comfort this affords to a person in fever. The room can be kept properly ventilated by a fire, and the temperature can be regulated by a thermometer. Some persons are in the habit of constantly sprinkling the room with vinegar—others with the chlorides. I do not know that it is necessary, and I think that the use of chlorine is doubtful, if not improper, and may prove injurious to the patient.

Having made these few general observations on the steps to be taken by those who enter on the treatment of typhus, I shall now proceed to speak of diet and medicines. In a disease like fever, which lasts frequently for fourteen, twenty-one, or more days the consideration of diet and nutriment is a matter of importance, and I am persuaded that this is a point on which much error has prevailed. I am convinced that the starving system has, in

many instances, been carried to a dangerous excess, and that many persons have fallen victims to prolonged abstinence in fever. This was one of the errors which sprung from the doctrines of those who maintained that fever depended on general or topical inflammation. They supposed that fever arose from inflammation, and immediately concluded that, to treat it successfully, it was necessary to reduce the system by depletion and low diet, and to keep it at this point during the whole course of the disease. Hence the strict regimen—the *diète absolue*—of the disciples of the physiological school, and of those who looked on inflammation as the essence of fever. The more the symptoms appeared indicative of inflammatory action, the more rigorous was the abstinence enforced. If a patient's face was flushed, or his eyes diffused, no matter what the stage of the fever was, they said, "here is inflammation of the brain, and nourishment will exasperate it." If he had red or dry tongue, and abdominal tenderness, they immediately inferred the existence of gastro-enteritis, and all kinds of food, even the lightest, were strictly forbidden. That this proceeds from false notions on the nature of fever is beyond doubt, and I pointed out this fact many years ago, long before the appearance of Piorry's work. Let us, in the first place, examine the results of protracted abstinence in the healthy state of the system. Take a healthy person, and deprive him of food, and what is the consequence? First, hunger, which after some time goes away, and then returns again. After two or three days, the sensation assumes a morbid character, and instead of being a simple feeling of want and a desire for food, it becomes a disordered craving, attended with dragging pain in the stomach, burning thirst, and, some time afterwards, epigastric tenderness, fever, and delirium. Here we have the supervention of gastric disease, and inflammation of the brain as the results of protracted starvation.

Now, these are in themselves very singular facts, and well deserving of being held in memory. Read the accounts of those who perished from starvation after the wreck of the *Medusa* and the *Alceste*, and you will be struck with the horrible consequences of protracted hunger. You will find that most of the unhappy sufferers were raging maniacs, and exhibited symptoms of violent cerebral irritation. Now, in a patient labouring under the effects of fever and protracted abstinence—whose sensibilities are blunted, and whose functions are deranged—it is not at all improbable that such a person, perhaps also suffering from delirium or stupor, will not call for food, though requiring it; and that if you do not press it on him, and give it as medicine, symptoms like those which arise from starvation in the healthy subject may supervene, and you may have gastro-enteric inflammation, or cerebral disease, as the consequence of protracted abstinence. You may, perhaps, think that it is unnecessary to give food, as the patient appears to have no appetite and does not care for it. You might as well think of allowing the urine to accumulate in the bladder, because the patient feels no desire to pass it. You are called on to interfere, where the sensibility is impaired, and the natural appetite is dormant; and you are not to permit your patient to encounter the horrible consequences of inanition, because he does not ask for nutriment. I never do so. After the third or fourth day of fever, I always prescribe mild nourishment, and this is steadily and perseveringly continued through the whole course of the disease.

Again, let us see how close a resemblance the symptoms generated by long-continued denial or want of food bear to those which are observed in the worst forms of typhus. Pain of the stomach, epigastric tenderness, thirst,

vomiting, determination of blood to the brain, suffusion to the eyes, headache, sleeplessness, and, finally, furious delirium, are the symptoms of protracted abstinence; and to these we may add, tendency to putrefaction of the animal tissues, chiefly shown by the spontaneous occurrence of gangrene of the lungs. It has been shown by M. Guislain, physician to the hospital for the insane at Gand, that in many instances gangrene of the lungs has occurred in insane patients who have obstinately refused to take food. Out of thirteen patients who died of inanition, nine had gangrene of the lungs. You perceive, then, that starvation may give rise to symptoms of gastric disease, to symptoms of cerebral derangement, and to mortification of the pulmonary tissue. It is not, therefore, wrong to suppose that when a system of rigorous abstinence has been observed in fever, and when food has been too long withheld, because, forsooth, the patient does not call for it, and because his natural sensibilities are blunted and impaired—it is not, I say, unreasonable to infer that gastric, cerebral, and even pulmonary symptoms may supervene, analogous to those which result from actual starvation.*

An attentive consideration of the foregoing arguments has led me, in the treatment of long fevers, to adopt the advice of a country physician of great shrewdness, who advised me never to let my patients die of starvation. If I have more success than others in the treatment of fevers, I think it is owing in a great degree to the adoption of this advice. I must, however, observe that great discrimination is required in the choice of food. Although you will not let your patient starve, do not fall into the opposite extreme: you must take care not to overload the stomach. When this is done, gastro-enteric irritation, tympanitis, inflammation, and exasperated febrile action are the consequences. I have witnessed many instances of the danger of repletion in febrile diseases. A case of this kind occurred some time ago in this hospital, in a boy who was recovering from peritonitis. In another case, in private practice, an incautious indulgence in the use of animal food was followed by a fatal result. A young lady ate some beefsteak, contrary to my orders, at an early period of convalescence from fever, relapsed almost immediately, and died of enteritis in thirty-six hours.

Food must be given with great care and judgment, particularly in the beginning of fever. For the first three or four days, particularly if the patient be young and robust, water, weak barley-water, and whey will be sufficient. After this it may be well to begin with some mild nutriment. What I generally give is some well boiled gruel, made of groats and flavoured with sugar, and if there be no tendency to diarrhœa, a small quantity of lemon juice. The ordinary oatmeal gruel does not answer sufficiently well for this purpose, for it is apt to produce griping and diarrhœa—symptoms which are extremely disagreeable in the commencement of fever, and which often lead to others of a more troublesome and formidable character. I am also much in the habit of ordering a little thin panado, morning and evening, during the latter part

* Huxham gives the history of a gentleman who obstinately starved himself to death, and would not for many days, either by force or persuasion, swallow any kind of food, or a drop of liquor. He soon grew feverish, flushed in his face, and very hot in his head; his pulse was small but very quick, in four or five days his breath became exceedingly offensive, his lips dry, black, and parched, his teeth and mouth foul, black, and bloody, his urine vastly highly-coloured, and stinking as much as if it had been kept a month; at length he trembled continually, could not stand, much less walk, raved and dozed alternately, fell into convulsive agonies frequently, in which he sometimes sweated pretty much about the head and breast, though his extremities were quite cold, pale and shrivelled; the sweat was of a very dark yellow colour, and of a most nauseous stench.

of the first, and the beginning of the middle stage of fever. A small slice of bread is slightly toasted, and boiling water poured on a tablespoonful of the crumbs, in sufficient quantity to make a thin panado, of which the patient takes a tablespoonful two or three times a day. It may be flavoured with a very small quantity of lemon juice and sugar, if there be no tendency to diarrhœa; but where this exists, or where you are administering mercurials, I think you should be cautious in the use of acids. Although medical men of the present day do not object to giving acids during the use of mercurials, I think the practice is not entirely devoid of danger, and I think our predecessors were right in withholding them under such circumstances.

You will begin, then, on the third, fourth, or fifth day, according to circumstances, with a little gruel; and after two or three days, you may add a little panado, giving, as I have already observed, a spoonful of either every third hour. As the fever advances you may add some mild animal jelly or broth; and one of the best kinds of nutriment in the middle and latter stages of fever is chicken broth. I do not speak here of chicken water; but I mean good and well made chicken broth. Give this, but give it in small quantities, and with great caution at first. Watch the effects of the few first spoonfuls; it may act injuriously, and you should give it up, at least for some time, if it produces any bad effects. If it brings on heaviness, sickness of stomach, flushing of the face, excitement of pulse, and increased feverishness, give it up, and return for some time to the gruel and panado. You can try it again in a day or two; for although your patient does not bear it to-day, he may to-morrow or the day after; and it is a most fortunate circumstance when it agrees with him, for, as I have already observed, it is the best kind of nutriment you can give in the middle and latter stages of fever.

Recollecting the tendency to diarrhœa and intestinal irritation in fever, you will be extremely cautious in allowing your patients the use of fruits. Indulging patients in the use of grapes and oranges is a very popular, but, in my mind, a very hazardous and improper custom. I have on many occasions seen persons injured by fruits of this description. Stewed and roasted apples are still more dangerous; they are apt to produce tormina, flatulence, diarrhœa, and intestinal inflammation. All acid or raw fruits have a tendency to produce irritation of the stomach and bowels, and should be avoided altogether, or very sparingly used.

In this hospital we seldom prescribe effervescing draughts, and never give them in the *ad libitum* quantity which some persons recommend. Thirst can be sufficiently assuaged by the use of whey, or common water acidulated with currant jelly or raspberry vinegar, given in small portions, and at certain intervals. Sometimes you will succeed effectually in controlling feverish thirst by the use of a very light infusion of cascarrilla, acidulated with a small quantity of muriatic acid. I have seen this employed with success by Mr. Kirby, and I have often prescribed it myself with the best effects. Very often a small quantity of some light bitter, slightly acidulated, will appease the morbid thirst of fever more effectually, and for a much longer period, than large draughts of water, or any of the fluids usually employed for the same purpose. You should always bear in mind, that thirst in fever does not exclusively depend on a dry or parched state of the mouth or fauces, but lies much deeper in the system, and has its origin in some peculiar derangements of the nerves, most probably of those belonging to the ganglionic system. In going through a fever ward, you meet with numerous illustrations of the truth of this position; one man, with a moist tongue and fauces,

labours under insatiable thirst, while you will observe another with parched tongue and throat, and yet without any desire whatever for fluids, or any choice as to their temperature. We had two examples of this in the fever ward during the past week. One patient with a moist tongue was incessantly calling for drink, while another man, who had his tongue almost perfectly dry, exhibited a very remarkable indifference to fluids.

One general observation as to the administration of food and nutriment in fever. All kinds of food and nutriment should be given by day, and the patient should, if possible, be restricted to the use of fluids by night. The natural habit is to take food by day and not by night, and in sickness as well as in health we should observe the diurnal revolution of the economy.

When you give nutriment, then, be careful in observing the usual periods of meals. The space of time to which I limit the giving of chicken broth, jelly, arrow-root, and other mild articles of diet, is from eight o'clock in the morning to eight in the evening. Always make it a rule that your patient shall take nutriment within the space of those twelve hours during which he is accustomed to take his meals when in health, and allow him nothing but mild diluent fluids during the night. I am persuaded that I have seen much benefit derived from following this simple plan.

With respect to drinks, the mildest, of course, should be preferred: on this point most persons are generally agreed, and it will be unnecessary for me to detain you with any particular observations. There is one error, however, which is very frequently committed in the use of drinks in fever; patients are generally allowed to drink too much. It may be urged that they have a strong desire for fluids; but they should not be gratified in everything they wish for. They labour under a constant state of nervous irritation and restlessness, and will beg of you to do twenty different things to relieve their immediate feelings; but it would be just as improper to give them large quantities of drink every time they desire to call for it, as to indulge them in any momentary whim which may be the offspring of their disordered and changeable fancy. The continued swilling of even the most innocent fluids will bring on heaviness of stomach, nausea, pain, and flatulence, and predisposes to congestion and intestinal irritation. From the mere ingestion of a large quantity of the simplest fluid, you will frequently see well-marked symptoms of gastric irritation arise during the course of fever. This is not a picture drawn from imagination; I have witnessed it on many occasions during the course of my practice. It is extremely painful, indeed, to be obliged to refuse drink to a patient labouring under intense thirst; but you should never allow them to take a large quantity of fluid at a time; you should impress upon them the danger attendant on such a practice, and tell them that a spoonful or two, swallowed slowly, allays thirst more effectually than drinking a pint at a time. The sensation of thirst, as you all know, is almost entirely confined to the fauces and upper part of the pharynx, and it is as much relieved by a small quantity, swallowed slowly and gradually, as it is by a large quantity gulped down at once.

Besides the simple fluids, there are other drinks required in fever. Beer, ale, porter, wine, tea, and coffee are also frequently used in the treatment of fever, and are of the utmost value when employed on appropriate occasions; they are adjuvants of the highest importance in the dietetic management of fever, and it will require some time to explain the rules by which you should be guided in their administration. I shall therefore speak of them according to the indications with which they are given; and first of tea and coffee.

You are aware that we give sedatives and narcotics to tranquillise, to produce a species of exhaustion of the mental faculties, and to bring on sleep ; and I do not see any reason why we should not also administer expegefacients, or remedies calculated to maintain intellectual activity, and keep the patient awake. Among the remedies most frequently employed for the latter purpose are tea and coffee. You have lately seen an infusion of green tea useful in a case of narcotism which occurred in the fever ward. A man in the latter stage of fever, and labouring under great nervous excitement and total loss of sleep, was ordered an opiate enema, after we had tried various other means without success. During the course of the evening he got twelve drops of black drop, with two ounces of mucilage of starch, in the form of enema, and soon after fell into a sound sleep. When we came next morning and enquired after him, everything was reported to have gone on well ; the opiate enema had answered the purpose completely, and the man was still sleeping deeply. We found, however, on a more accurate examination, that he was in a kind of lethargic state, and could scarcely be roused. When addressed in a loud tone of voice, he raised himself heavily and slowly, half opened his eyes, gave a brief answer to our questions, and then, leaning back on his pillow, dropped asleep. Observe here the danger connected with this state. He was in an advanced stage of fever, had been restless and sleepless, and had suddenly passed to an opposite state. The rapidity with which coma had supervened on sleeplessness, and the danger of fatal congestion of the brain coming on, gave me considerable alarm. There was no use, however, in thinking of what had been done ; the man's state called for prompt and decided measures, and we proceeded at once to attack the symptoms of our own creation. One of the gentlemen went down and got some green tea, of which he made a strong infusion, and administered a strong dose of it to the patient. This had the desired effect ; the symptoms of coma gradually disappeared, and when I came to see him in the afternoon, he was quite out of danger. Green tea was first introduced here as an expegefacient in the treatment of coma by Dr. Edward Percival, son of Dr. Percival of Manchester ; and some years ago he read a paper at a meeting of the College of Physicians, in which he brought forward several cases of coma and stupor, in which green tea had produced the most favourable effects. On the continent they generally use strong coffee for the same purpose. Whether these beverages produce this effect by their influence on the circulation, or on the nervous system, I am not prepared to say ; but there cannot be a doubt of their efficacy and value in many cases of this description ; and I am frequently in the habit of using both with this intention.

While on the subject of expegefacients, I shall beg leave to read for you a very curious case from the 13th number of the *Boston Medical and Surgical Journal*, in which an expegefacient of a less agreeable character was employed to rouse a patient from the lethargic stupor brought on by a large dose of laudanum. There are some transatlantic peculiarities of expression in the details of this case, but I have no doubt of its being correct. It is entitled "a case of successful treatment by flagellation, where a large dose of laudanum had been taken." And the author, Dr. Joseph Barrett, of Middleton, Connecticut, proceeds as follows :—

"Tincture of opium is not too frequently resorted to for destructive purposes. It is also, unfortunately, and too frequently, taken by mistake, and proves fatal before efficient means can be adopted to counteract its deleterious effects on the system. I am induced, therefore, to offer a short statement of a case

of poisoning with laudanum that fell under my care several years since, for the following reasons : first, the success that attended the mode pursued ; and, secondly, not having met with any such means recorded, to my knowledge,* either in works on medicine, or in treatises on poisons."

Observe, it is not I that am speaking here, but Dr. Barrett, of Middleton, Connecticut.

"In the year 1822, February 23rd, I was called on to see Mr. Wright Harris, (this was in the state of New York), who had intentionally taken a large dose of laudanum for the purpose of destroying himself. He had committed this act during his absence from home, under circumstances which it is not important to relate. Much time (about three hours) was therefore lost before any effectual measures could be adopted for his relief. His case, as I found him, appeared to be altogether hopeless. Before my arrival, emetics and various drinks had been tried, besides frictions, and constant though ineffectual attempts had been made to irritate the œsophagus by feathers. All these means had failed, and the patient was in such a profound sopor, that apparently nothing but warmth remained to indicate that life had not already become extinct. The quantity of laudanum taken was ascertained to be one ounce and a half. The case appearing so desperate, justified me in the course of treatment which I was, under existing circumstances, then obliged to adopt.

"Internal remedies having entirely failed, there was no chance left but for high external excitements. I therefore determined to use vigorous measures. I commenced with flagellations, using long, pliant, fresh twigs to the palms of the hands and soles of the feet. These were briskly applied, and in a short time gave indications of uneasiness and pain. This treatment was unremittingly pursued till the man spoke, and complained of being pained by the whipping, when this severe appliance was relaxed ; but, on so doing, he instantly sunk into a profound stupor, from which he was again only roused by the severity of the whipping. It required the aid of a number of men to take turns in the flagellation, as well as to support and walk him about, for a cessation of the use of the rods was followed by instantaneous stupor. After about six or eight hours under this course, the stupor was lessened, and the severity of the flagellation mitigated ; but, as the case required constant high excitement, it was still repeated at intervals, till eventually the exercise of walking was sufficient to keep him awake. This was in about twelve hours from the commencing with the flagellation. He afterwards experienced but little inconvenience from his hands and feet, and was perfectly restored in a few days to his usual health. I would here state that the first proposal made by me to adopt flagellation, as the only hope, was objected to by persons present, from its carrying with it the semblance of unkindness towards what was regarded by them as a corpse ; and it was not till the application of the rods by myself in the first instance, that I obtained the aid of those present ; but as soon as the patient began to move, and at last spoke, they took hold with alacrity, and, by dividing themselves into relief parties, they very cheerfully, and rather amusingly, kept up the castigation so long as the state of the patient required it at their hands. He by no means seemed to relish this harsh proceeding, and in return gave his attendants several severe blows. If, while lifting his arm to give a blow, the flagellation was then entirely suspended, the arm would instantly sink powerless ; to such a degree had

* This practice, though not generally adopted, has been recommended by several authors in Europe.

the effects of the narcotic drug prevailed over the nervous system, that nothing but the torture of the rods could rouse him. On his recovery it was said that the man's wife was highly satisfied with the remedial course, which she believed to have a good effect upon his subsequent conduct."

I have already alluded to the abuse of soda or seltzer water and effervescing draughts in fevers. It is very much the custom, both in hospital and private practice, to look upon the latter as a remedy which may be administered at the pleasure of the patient or the discretion of the nurse. They are certainly to many persons a most grateful means of cooling thirst; but the cautious physician will never allow his patient to indulge too much, for he knows that their frequent use distends the stomach, and produces a tendency to tympanitis and bowel complaint. I am also of opinion that the exhibition of large quantities of free carbonic acid is a very doubtful, if not a dangerous practice in fever, and may increase that tendency to narcotism and functional derangement of the nervous and respiratory systems which is observed in every case of genuine typhus. In addition to this, the evolution of a large quantity of fixed air in the stomach frequently causes a very disagreeable sense of distention and suffocation, and acts injuriously on the mucous membrane.

LECTURE X.

GENERAL TREATMENT OF FEVER.—TYMPANITIS.—HICCUP.—
HEMORRHAGE FROM THE BOWELS.

BEFORE I proceed to speak further of the diet and remedies to be employed in the treatment of typhus fever, allow me to make a few observations. There is a patient at present in the fever ward, whose case shows the necessity of strict attention and incessant watchfulness on the part of those who have the management of bad cases of fever. A man who has been labouring under delirium, with symptoms of cerebral excitement and congestion, was ordered the tartar emetic solution, with the view of reducing the increased vascular action; but on enquiry this morning, we find that he has taken no medicine, and that his symptoms have been allowed to go on unchecked for twenty-four hours. He refused to take his medicine, and the nurse very improperly neglected to report the circumstances of the case, in order that proper steps might be taken to remedy so dangerous an omission. Thus a whole day has been lost at a most critical and important period of fever. There can be no excuse for such negligence as this, for it could be easily remedied. Patients in this state have always more or less thirst, and a spoonful of the tartar emetic solution could be mixed with whey or cold water, and administered in this way without his knowledge, or, if he refused to drink any fluid, it might be given in the form of enema. There is no excuse, therefore, for such negligence; and when you recollect the state that such patients are in—their nervous excitement, incessant raving, agitation, struggling, and sleeplessness—you will be able to appreciate the dangerous and even fatal consequences that may arise from culpable neglect of this kind.

At our last meeting I spoke of the use of food and drink, and laid before you my views of the most appropriate articles of diet in the various stages of fever. I told you that I attributed much importance to the use of a proper regimen, and that I looked upon the observance of this principle as a main cause of success in the treatment of typhus. I think it is chiefly owing to our care in this respect that so few of our patients have tympanitis. Now and then we have cases of fever with tympanitis and diarrhoea, but in the majority of instances, these are persons who have been under treatment before admission, and who have been too much purged. The use of drastic purgatives in the early and middle stages of typhus is one of the most fertile sources of subsequent evil, and there are few evils of greater magnitude than tympanitis with diarrhoea, and gastro-enteric inflammation, particularly in the latter stage of fever. Now, if you inquire into the history of the cases in which these symptoms are most distinctly marked, you will find that in at least two-thirds, powerful cathartics have been employed not once, but repeatedly, in the commencement of the disease. Almost all cases in which calomel and colocynth, or aloes, followed by black draught, have

been liberally used in the commencement, become tympanitic, and frequently at a very early period.* The same mischief, but in a less degree, is apt to occur where a system of strict abstinence has been enforced and continued undeviatingly for a considerable length of time. Want of food, even in the healthy state of the system, is apt to produce flatulence, weakness, and distention of the stomach; and in many instances gives rise to very serious forms of gastro-intestinal irritation. The *diète absolue* is very apt to produce the same effect in fever. Even the abuse of drinks of the simplest and most innocent description is apt to produce flatulence, distention, and a tendency to tympanitis. Hence the value of the rule which I laid down in my last lecture, viz., to allow the patient only small portions at a time, and to order him to swallow them slowly. The abuse of the ordinary drinks, as common water, whey, barley-water, soda and seltzer waters, and effervescing draughts, is a frequent source of tympanitic swelling in fever.

Having commenced the subject of tympanitis in fever, I cannot do better than proceed now to describe its causes and the mode of treating it which I have found most effective.

The mucous membrane of the alimentary canal secretes air in great abundance during health. The immediate uses of the secretion have not been enough studied, nor have I now sufficient time to dwell on this subject; it may be remarked, however, that the presence of air in the bowels must be of great importance, both physically and chemically assisting digestion, which

* The views of Dr. Stokes quite agree with mine:—

“A common practice has prevailed in these countries, and, indeed, still exists to a very great extent, of making the patient take a purgative medicine every day; and this, I regret to say, is too often done, even in cases where the surface of the small intestine presents extensive patches of ulceration. Now, I will ask you, can anything be so barbarous as this, or can it be exceeded in folly or mischief by the grossest acts of quackery? Here we have an organ in a state of high irritation, and exhibiting a remarkable excitement of its circulation; and yet we proceed to apply stimulants to that organ, and to increase the existing irritation. Would it not be absurd in a case of inflammation of the knee or elbow joint to direct a patient to use constant exercise and motion? Would it not be a very strange practice to apply irritants to a raw and excoriated surface? Yet something equally absurd, and equally mischievous, is done by those who employ violent purgatives in a case of inflammation of the digestive tube in fever. This has been the great blot in the history of British practice. Calomel, and black bottle, and even jalap, and aloes, and scammony, have been prescribed for patients labouring under severe and extensive dothenteritis. Morbid stools are discharged, and the more morbid they are, the more calomel and purgatives does the physician give to change their character, and bring them back to the standard of health. I want words to express the horrible consequences. Too often have I seen fever patients brought into the hospital with diarrhoea, hypercatharsis, and inflammation of the mucous membrane, from the use of purgatives administered before their admission. Practitioners will not open their eyes. They give purgatives day after day, a very easy practice, and one for which there are plenty of precedents; but it is fraught with the most violent consequences. I will freely admit that the disciples of the school of Broussais have gone too far in decriing the use of laxatives altogether; but if they have lost hundreds by this error, British practitioners have *killed thousands* by an opposite plan of treatment. In cases of fever, where there is no decided symptom of gastro-enteric disease, there can be no objection to the use of laxatives, *if required*, but they should always be of the mildest description. You will gain nothing by violent purging in fever, mild laxatives alone can be employed; and where there is any sign of intestinal irritation present, even these should be used with caution. There is one way of opening the bowels, which you may always have recourse to with advantage in fever, viz. the use of enemata. There is not the slightest doubt that occasionally accumulations of fecal matter will take place, and tend to keep up irritation; but they should always be removed with the least risk of producing bad consequences. To purge in fever when intestinal irritation is present is a practice opposed alike to theory and experience, and I have already stated that its results are most horrible.”

Dr. Stokes' Lectures, American edition, p. 500.

essentially consists in the gradual softening and final solution of the solid food, and the absorption of the dissolved portions. Physically the air must facilitate the motions of the alimentary bolus, keeping the bowel in a suitable state of distention, and being ready immediately to occupy the place of the solid or fluid contents as they are moved about or absorbed; chemically, it is well known that certain gases, such as carbonic acid—a gas always very abundant in the intestine—possess a remarkable power of rendering various solids more readily soluble in water, particularly when these gases are subjected to the effects of pressure in close vessels along with the solvent fluid, a state of things which exists also in the intestines. Another chemically powerful gas secreted by the mucous membrane of the bowels is sulphuretted hydrogen. In the upper portion of the canal common air is most abundant; in the lower the two other gases become predominant—a distribution not fortuitous, but no doubt destined to fulfil important purposes. It appears, indeed, that those portions of the alimentary canal which secrete fluid acids (the muriatic and acetic) do not secrete acid gases, while the remaining portions secrete these gases in great abundance, so that one may be considered as supplemental to the other.

I am not aware that physiologists have as yet considered this subject in the point of view here brought forward,* although it evidently illustrates many things connected with practice. Thus I have frequently remarked, and I would call attention to the fact, that in persons labouring under dyspepsia, and in whom the derangement appears to be limited to the stomach, the supplementary digestion in the small intestines appears to be carried on with great activity. Such persons suffer much immediately after having taken food; they experience an oppressive sense of weight about the stomach, with flatulence and distention; in fact, they feel exceedingly uncomfortable until the food passes into the duodenum, where the digestive power is in full vigour and activity. As soon as this occurs, the sense of weight and distention rapidly disappears, and they are no longer troubled with flatulence. I have further noticed that such persons do not lose flesh or strength, and an inspection of their alvine discharges has shown that every particle of nutritious principle has been absorbed, and found its way into the system. This I have frequently observed. Persons will apply for advice who have been for a long time labouring under symptoms of derangement of the stomach; yet they are by no means emaciated, and are quite capable of discharging the duties of situations which require great mental and bodily activity. This shows that, if the process of digestion does not go on well in the stomach, it must somewhere else. If, in such a case, the stomach is weak and unable to perform its functions, the remaining part of the digestive tube is strong, and pours out the fluids necessary for completing the process with great energy.

Again, we meet with many persons who never complain of acidity, pain, flatulence, or sense of distention and weight in the stomach, and yet they are frequently annoyed with unpleasant abdominal sensations; they have costive or irregular bowels, diarrhoea, tormina, tympanitis, fetid, unhealthy evacuations, and scanty, high-coloured urine. They feel uncomfortable, not immediately after a meal, but in three or four hours; they lose flesh and strength, and have a pale, sallow, unhealthy look. Here the dyspepsia is intestinal;

* This view of the uses of air in the alimentary canal, first published by me in 1836, has been completely verified by the subsequent researches of Liebig.

the stomach works well, and performs its functions with vigour, but when the alimentary mass enters the small intestines, it produces a great deal of discomfort, because the supplementary digestion is deranged, and its performance attended with much labour and difficulty.

In some cases both these forms of dyspepsia are combined, and these are, of course, the worst; but they exist quite distinct from each other, and a patient, with his stomach in a perfectly normal and healthy state, may labour under dyspepsia from derangement of the digestive functions of the small intestines; or, with the latter in a healthy state, he may have indigestion from simple gastric derangement. We have, indeed, reason to conclude, that when organic or functional disease so impairs the energies of the stomach that it assists but little in the performance of digestion, the intestinal digestion becomes more intense; it is only thus that we can account for the absence of emaciation in certain cases, such as that of Napoleon Buonaparte, where, nevertheless, the stomach was so extensively disorganized as totally to prevent its taking any part in the process of digestion.

The preceding remarks, though not directly connected with, are nevertheless illustrative of the subject under consideration—it being evident that the secretion of air natural to the mucous membrane of the intestines during health, may readily be augmented in disease, so as to give rise to intestinal tympanitis. This happens in all cases where inflammation or congestion attacks this tissue—an occurrence particularly frequent in fever. When tympanitis takes place in the commencement of fever, it invariably proceeds from inflammation, and is usually preceded by tenderness and other unequivocal symptoms of inflammatory action within the abdominal cavity. The remedy for this complication consists in local blood-letting freely applied together with small doses of Dover's powder, and considerable doses of, *hydrargyrum cum cretâ*: all active aperients should be avoided, but emollient lavements are often useful.

When tympanitis occurs during the middle or latter stages of protracted fever, it is sometimes inflammatory, but more frequently depends on a state of venous congestion; occupying a considerable extent of the mucous membrane of the small intestines, which subsequently becomes gorged with blood, and livid, and secretes, among other morbid matters, a large quantity of gases. This tympanitis is often preceded by bowel complaint, unaccompanied by abdominal tenderness or pain, in the first instance—a state of things which may last for one or several days before inflation of the intestines commences. When this occurs, then, if it proceeds rapidly, the belly becomes painful and somewhat tender on account of the sudden distention; and a superficial observer is thus apt to attribute the tympanitis to active inflammation.

Now, as this state of things takes place at a period of great debility, when the powers of life are already much exhausted, and when even the application of a few leeches may be followed by alarming weakness, it is evident that this tympanitis must be treated in a manner different from that above spoken of. In general, it will be right to commence with the exhibition of ten or fifteen grains of magnesia, with the same quantity of rhubarb, given in some carminative vehicle, such as spearmint or fennel water; after this has operated, the belly should be well stuped, and rubbed with a stimulating terebinthinate liniment. It often happens that, after the operation of the rhubarb, the diarrhoea, and with it the tympanitis, begins sensibly to diminish, and then a little care soon removes these symptoms altogether. Sometimes, however, no such improvement follows; and the belly continues to swell, while the

bowel complaint is unchecked. This is a dangerous crisis, and requires the utmost judgment in its treatment.

It is of great consequence to remark, that when the bowel complaint has preceded intestinal tympanitis in fever, and when, notwithstanding the continuance of the bowel complaint, the tympanitis has gone on increasing, oil of turpentine will seldom be of the least use, whether exhibited by the mouth or in an enema. We must, therefore, under these circumstances, look for some remedy different from those usually recommended, and such remedy we possess in the acetate of lead.

Pathologists are agreed that venous congestion and active inflammation of the mucous membrane of the intestinal canal may often be associated together; and, in fact, although these two states are different, and require different remedies, yet they so nearly approach each other as to require medicines taken from the class of antiphlogistics; the one requires, however, a very different antiphlogistic from the other, just as chronic dysentery must be combated by remedies different from those suited to acute bowel complaints. Oil of turpentine is admirably suited to the cure of congestive tympanitis in fever, where no bowel complaint, or a very slight one, has preceded or accompanied it. But is oil of turpentine an antiphlogistic remedy? I answer, does it not cure certain cases of iritis, of sciatica, and of epilepsy? When, however, a bowel complaint forms the chief feature in a patient's state, and is associated with tympanitis, then the acetate of lead must be our sheet anchor.

I was first led to use this medicine in considerable doses, in the latter stages of protracted fever, on the recommendation of Dr. Bardsley, for the purpose of preventing that state of the bowels which so insidiously leads to ulceration of Peyer's glands. Dr. Bardsley certainly deserves much credit for the introduction of this remedy, with which I became familiar in consequence of using it largely in Asiatic cholera—a disease in which the serous discharges are almost invariably preceded, and, when the patient recovers, invariably followed, *by a copious secretion of air into the bowels*. This it was that led me to observe the anti-tympanitic properties of the sugar of lead; for I have found it to be *a remedy, not merely for the secretion of serous fluid into the intestines, but for the secretion of air in that disease*. Afterwards, analogy led me to apply it to the cure of tympanitis combined with diarrhoea, in the middle or latter stages of fever; and I have had much reason to congratulate myself upon this new application of the remedy, for it has been very successful in my hands. It may be well to observe that sugar of lead, besides its astringent, seems to possess *antiphlogistic* properties; otherwise we could scarcely account for its good effects in active hemorrhage, and in violent action of the heart, for which latter, when given in large doses, it is much celebrated in France.

In the above sketch of the treatment of tympanitis, my chief object being to point out the circumstances in which acetate of lead or turpentine may be used, I have omitted mentioning many other remedies and methods of treatment, as being sufficiently known to practitioners in general; among these probably none is more effectual than leeching the anus in inflammatory cases, and, in *all*, mercurial dressing applied over a very large vesicated surface on the abdomen.

Oil of turpentine is useful not only in the tympanitis of fever, but also in the delirium which attends the low stage of that disease. You will meet cases of fever, where depletion and blistering have been carried to their full extent, and yet your patient's head remains affected; his eye is clear, intelli-

gent, and free from suffusion, but he raves at intervals, gropes with his hands, picks the bed-clothes, and grinds his teeth. Here we have not only an affection of the brain, but we observe, in the last-mentioned symptoms, one of the signs of intestinal irritation. In such cases, the vital energies are much depressed; you cannot use leeches or blisters or other depletory measures; it would be a great mistake to employ them. What are you to do? prescribe opium in moderate doses and at certain intervals, as, for instance, from five to eight drops of black drop every sixth hour; give your patient a little wine, and have recourse to the oil of turpentine. Here the value of this remedy is very great indeed, for it not only opens the bowels (a point of considerable importance in such affections), but also removes tympanitis, and exercises a powerful influence in controlling and quieting the nervous system. I have seen persons' lives saved by a few doses of the oil of turpentine, and have watched its tranquillizing effect on the nerves with pleasure and surprise. The following is the prescription which I use:—

R. Olei Terebinthini, fʒi.

Olei Ricini, fʒiss.

Aquæ, fʒi. Misce, fiat haustus, sextâ quâque horâ sumendus.

Under certain circumstances, turpentine is likewise useful in intestinal hemorrhage occurring in fever. A person in fever gets increased frequency of pulse, heat of skin, dry tongue, and about the twelfth day his head becomes engaged, his countenance flushed, eyes suffused, and a tendency to sensorial derangement. His bowels at the same time are affected, and tympanitis appears. Matters then grow worse, he begins to pass blood, and, on visiting him, his alarmed relatives show you quantities of thin grumous blood which he has discharged from his bowels. Now, what course are you to pursue in this case? Stop all medicines whatsoever, and let your patient alone. Watch the progress of this discharge, and you will find that it disappears gradually, and, when this occurrence takes place, never do anything. As in fever a patient may get epistaxis, and it may usher in a favourable crisis, so, in like manner, he may have a critical discharge of blood from the bowels. In either case, you are not to interfere with the wise provisions of nature, or to give anything which may produce irritation, or cause a cessation of this salutary process. You recollect a case of this kind in the hospital, which the students requested me to stop, and that I refused to do so, because I thought the hemorrhage critical. But it may happen that this sanguineous flux may go on so far as to threaten great danger. This is certainly an occasional result, for I have seen epistaxis terminate fatally. Here you must interfere to avoid a greater evil; and it is at this critical period that the internal exhibition of oil of turpentine combined with opium may be ventured on; but while the bleeding continues moderate, and exhibits no threatening indications, and is accompanied by a corresponding diminution of fever, you should leave the matter entirely to nature. You perhaps have seen a patient here, who on the fourteenth day of fever got this discharge of grumous blood, and may remember that we gave nothing but a little of the saturated solution of carbonate of ammonia. Now, if we had given this patient an opiate, we should have repressed a sanatory effusion, or, if we had given him a purgative, we might have precipitated it into a fatal hemorrhage.

I shall next proceed to make a few observations upon hiccup.

When hiccup occurs in typhus fever, it is generally owing to a congested

state of the mucous membrane, accompanied by flatulent distention of the stomach and bowels. A remarkable case of this sort occurred to Dr. Ireland and myself, in which a corpulent man, labouring under maculated typhus, hiccupped, during several days, more than eighteen hours out of the twenty-four, as was ascertained by notes kept by his sister, who carefully watched him.

In such cases, the remedies adapted for tympanitis in typhus fever are most appropriate, and therefore much variety of treatment is required. Thus, when hiccup occurs early in the disease, along with much thirst, parched tongue, and tender epigastrium, the treatment ought to consist of leeches to that part, iced water in small quantities, *diète absolue*, and bland aperient injections. But, when it comes on late in the disease, we must have recourse to stimulating liniments applied to the spine, blisters to the epigastrium, and, if the bowels are at the same time confined and distended, oil of turpentine internally or by lavement, while the strength is supported by wine and proper nutriment. Here the oil of turpentine is best given in doses of two or three drachms, combined with castor oil; but, on the other hand, when diarrhoea is present, together with tympanitis, we must have recourse to acetate of lead, as before recommended, to various stimulants in small and repeated doses, such as turpentine, æther, &c., combined with opium. In fever, hiccup occasionally occurs without any obvious derangement of the alimentary canal being present, and without our being able to detect any cause of this symptom. Our treatment under such circumstances must be empirical, and relief will be frequently obtained by the exhibition of some substance which has an obvious action on the nervous system; but, as I have said, our treatment must be empirical—in one patient we may find success attend the exhibition of an alkali, in another of an acid. The same observation applies to swallowing of ice, or water as hot as it can be drank, to the various narcotics and stimulants, to musk, camphor, &c.

Let me again call your attention to another circumstance connected with the state of the digestive organs in fever, which I incidentally mentioned a few moments since, namely, hemorrhage from the bowels. I have seen four patients in whom the occurrence of hemorrhage from the bowels induced death—in all the fever had a marked gastric character, and the passing of blood was at first unattended by tenesmus, pain in the abdomen, or any swelling of the bowels or tenderness denoting local ailment in the intestinal canal. The bleeding continued many days, the stools being mostly copious, and consisting either altogether of black grumous clots mixed with fluid blood, or else of blood mixed intimately with fecal matter. Sometimes not more than one or two evacuations took place daily, and the debility not being proportioned to the quantity of blood lost, it is more than probable that in such cases the bleeding continued into the bowels in much greater quantity than the blood was evacuated.

In all these cases the hemorrhagic, dicrotous pulse (see page 39) preceded the discharge of blood.

It has been satisfactorily proved by modern investigations, that the dark-coloured matter similar in appearance to coffee-grounds, which is discharged from the bowels in this disease and yellow fever, consists of the coagulum of blood broken down and darkened in tint by the acids of the intestinal canal. I had lately an opportunity of observing a fact strikingly corroborative of this explanation. A young gentleman labouring under very severe fever, with violent headache, was attended by Sir Philip Crampton and me. On

the seventh day of his illness, two leeches were applied to the internal surface of his nostrils, and produced a very copious flow of blood, large quantities of which were swallowed by the patient during his sleep. In thirty-six hours after the bleeding had ceased, the nurse-tender became very much alarmed on observing the blackness of the alvine discharges. She told the family it was a very dangerous symptom, and I was sent for in great haste. I need scarcely add that, on seeing the evacuation of so large a quantity of matter resembling coffee-grounds, the true explanation of the occurrence immediately suggested itself, and enabled me to dispel the alarm of my patient's parents.

When blood is swallowed by a person in health, whose digestive organs are vigorous, it never forms anything like coffee-grounds in the large intestines, but is thoroughly digested and absorbed in the superior portion of the alimentary canal.

LECTURE XI.

GENERAL TREATMENT OF FEVER.—EMETICS.—PURGATIVES.—BLEEDING.

HAVING spoken at some length respecting epidemics, one only fact occurs to me in addition to those already detailed. It by no means follows, when fever has a decidedly malignant type, that other acute diseases which prevail at the same time should exhibit a similar tendency; thus measles and scarlatina are often epidemic simultaneously with fever, and yet each of the three may present a different type. In the year 1842 we witnessed a very widely disseminated epidemic of scarlatina, whose character was most malignant and fatal, and yet fever during that period was unusually mild in its form, while measles were rife and of a purely inflammatory character. Here, then, was a year during which fever, without becoming inflammatory, ceased to be *typhus*, scarlatina assumed a typhoid character, and measles prevailed, but of a purely inflammatory type! This statement, for the accuracy of which I can vouch, teaches how difficult it is to explain the causes which give to epidemics their peculiar complexion; indeed, for several years scarlatina had been extremely malignant, and during the same period measles very benign; so that we must not too hastily adopt the hypothesis that some general cause exists capable of simultaneously modifying diseases of different species—an hypothesis which has found many advocates, among the rest Dr. Watson, who says, “Sydenham found that measles of an unusually bad kind prevailed in London in the years 1670 and 1674; the very same years in which small-pox was also remarkably malignant and fatal. This illustrates what I have stated before, viz., that the typhoid tendencies of these and other febrile disorders depend less upon any peculiar virulence in their *exciting* causes, than upon some change previously effected in the human body by the silent and gradual influence of certain *predisposing* causes.”*

I have already observed, that it is not my intention to give a systematic account of the practice to be adopted in the treatment of typhus. I have designedly passed over many important points, being unwilling to trouble you with any observations on practical matters in which my opinions coincide with the latest and best authorities. I shall therefore touch very briefly on the subject of emetics in fever, as the rules by which the administration of these remedies are regulated have been laid down with precision by many modern writers.

I am not in the habit of using emetics in fever, except when called in at the very commencement of the disease. Here emetics are of great value, and will often succeed in stopping the fever. There is no way in which you would be more likely to cut short an attack of fever than by the administration of an emetic, if you chance to see the patient when the fever is just beginning. I speak here without any subterfuge, and without grounding my

* *Lectures on the Practice of Physic*, vol. ii. p. 750, 1st ed.

opinions on the results of doubtful or merely suspicious cases. I speak not of cases of bad feverish cold, in which the symptoms, at the commencement, bear a very strong analogy to those which usher in typhus; I speak of cases where the patient gets rigors, followed by the usual symptoms of feverish excitement, after exposure to contagion, and is seen on the evening of seizure.

If I were called to visit a patient who had been attacked with shivering, headache, quickness of pulse, increased temperature of skin, and lassitude, during the prevalence of an epidemic, or after exposure to contagion, and happened to see him a few hours after the attack, I should certainly bleed him, and administer an emetic: and I think he would have a very good chance of escaping the disease. I think the exhibition of emetics an excellent practice in the commencement of fever, but I must observe that the period for their exhibition is very brief. After the lapse of twenty-four or thirty-six hours from the occurrence of the rigor, they will not succeed in cutting short the fever. A few hours make a vast difference in the chances, and after the lapse of twenty-four hours there is, generally speaking, very little hope of extinguishing the disease. At the termination of that period, it has in most cases seized hold of the constitution too firmly to be shaken off by an emetic, even though aided by bleeding; but for the first few hours after seizure, the plan I have mentioned affords you a reasonable hope of being able to put a stop to the mischief at once. Army surgeons, and practitioners who have opportunities of treating incipient disease, are well aware of the truth of these observations. I have myself witnessed many cases in private practice, of medical men and students who had been attacked with symptoms of fever after exposure to contagion, and who escaped by taking an emetic and being bled in proper time.

Let me here read for you a few observations on the use of emetics at the commencement of fever, which appear to me to be very judicious:—

“When the opportunity offers of administering remedies in the first days of fever, an emetic may often be given with advantage, especially where the type of the fever is mild. An emetic clears the stomach of offending matters or sordes, which may be either undigested aliment, bile, thickened and vitiated mucus, or its own thin acid or acrid secretions. Besides which, an emetic has the additional advantage of determining the blood to the surface, and in this way relieving the oppressed state of internal organs. A powerful emetic may sometimes give the system a shock, sufficient to alter the course of the symptoms, and even to cut the fever short. This practice, however, is not without its dangers. In some cases it determines morbid action to the stomach, and renders that organ *irritable* during the whole course of the fever. At other times an emetic brings on local inflammation in some important viscus, on the same principle that it forces out sweat. As a general rule, we are not justified in giving an emetic, unless we have reason to think that the stomach is *foul*, that is, loaded with acrid matters, whether formed within the body, or received into it from without.”—*Gregory's Practice of Medicine*, page 121. *Sixth Edition*.

“The arrest of fever may be also successfully attempted during the stage of invasion, or up to the commencement of vascular reaction or excitement; but when once this period has supervened, the fever will run a regular course, although it will often be much shortened by treatment. Fevers, I believe, caused by infection, are very rarely arrested after reaction is established. The means just advised for the formative stage may likewise be tried in that of invasion; but much discrimination is requisite in the choice of

means. Camphor, ammonia, and warm diaphoretics and diluents, sometimes with opium when the head is not affected, the warm bath, the vapour or heated air bath, and frictions subsequently, are the most generally appropriate. In robust persons, and where terrestrial emanations have been the chief cause, a warm emetic and active stomachic purgatives may also be exhibited; but they should more rarely be ventured upon in other circumstances, for the reasons just assigned. When there is tenderness at the epigastrium, with other signs of gastric irritation and depression of nervous power, instead of an emetic or cathartic, a large sinapism, or a warm turpentine epithem should be placed upon this region, and over a great part of the abdomen; or, in other cases, upon the inside of the thighs; but neither of these ought to be resorted to if reaction have supervened, nor continued after it has come on.” —*Copeland's Medical Dictionary*, vol. i. page 921.

Except at the commencement, then, I am not an advocate for the use of emetics in fever. If they fail in checking the disease, they are apt to be followed by considerable debility of the stomach and general system—states which it would be better to avoid, where the patient has to run through the course of a long and exhausting disease. If called to a case of fever in which you cannot give an emetic, there are two or three other remedial agents you may employ to moderate the feverish excitement, and render the disease milder and more manageable during its progress. One of these is James's powder, with which you may combine blue pill or hydrargyrum cum cretâ, if necessary, giving two or three grains of each every third or fourth hour, according to circumstances. Another remedy, which many are in the habit of using, particularly where the fever is accompanied with symptoms of inflammatory excitement, is a weak solution of tartar emetic. Two grains of tartar emetic may be dissolved in a pint of barley water, and of this mixture a table-spoonful may be taken every second hour. These are good and useful remedies in the first stages of fever; they moderate the feverish excitement, act gently on the bowels, and produce more or less diaphoresis.

It most commonly happens that the physician is not called to see a case of fever until forty-eight hours, or perhaps three or four days have elapsed, from the period of seizure. In this climate feverish colds are extremely frequent; and as their symptoms bear considerable resemblance to those of incipient fever, and very few are capable of making a distinction between them for some time, a person attacked with fever usually regards it, at the first onset, as the result of cold, and expects to be able to alleviate or remove it in a few days by bathing his feet and taking a warm drink at night, with, perhaps, some opening medicine on the following morning. The usual period, however, at which the feverish cold had been accustomed to decline, passes over without the expected amendment, the patient feels himself weaker and worse, the conviction is brought home to him that his disease is something more than an ordinary cold, and he sends for a physician about the third or fourth day. Now at this period, I believe, you must be content to let the fever run its course; for it has taken root too deep to be expelled by a *coup de main*, and yet many persons seem to think they can still succeed by what they term bold and decided treatment. The mode which they generally adopt is, first, to administer an emetic, and then to have recourse to copious and continued purgation. This leads me to say a few words on the use of purgatives in fever.

The abuse of purgatives, particularly in the first stage of fever, continues, I am sorry to state, even to the present day, a blot on the character of præ-

tical medicine. Large doses of calomel and vegetable purgatives, in the form of pill or bolus, followed by draughts composed of infusion of senna, Epsom salts, and electuary of scammony, form the chief part of the treatment in fever with too many practitioners. I know well that this is a mode of proceeding too commonly employed, and I have frequently heard those who adopt it, when questioned as to the remedies they have used, declare, with much self-satisfaction, that the patient's bowels have been well cleared out. This, I believe, is a very common mode of treating fever in the incipient stage; and though there can be no objection to the administration of a purgative, as a cautionary measure, particularly where an accumulation of fecal matter in the bowels is suspected, I must confess that my experience does not authorize me to say that fever can be either checked or mitigated by continued purgation.

If active purgation does not check fever in the commencement, what benefit then can be expected from it? People will tell you that full purging must act beneficially in two ways: by unloading the bowels, and by evacuating the general system. With regard to evacuating the bowels, I think it can be done well and sufficiently by the use of mild aperients. It is seldom necessary to give active purgatives, and we never have occasion to continue their employment from day to day. The bowels, I repeat, can be sufficiently unloaded by the exhibition of mild aperients and enemata, and even these will seldom be required more than once or twice in the commencement, and occasionally during the course of the disease. The second question (in reference to the use of purgatives as general evacuants) is, whether it is prudent or safe to act antiphlogistically on the system through the medium of the intestinal canal, during the first stage of fever? My opinion is, that it is not. I grant that the administration of active purgatives is followed by a copious evacuation of the fluid secretions of the intestinal canal, and that in this way you deplete the system to a very considerable extent. Admitting all this, and, moreover, that depletion is required, still I am of opinion that this is not the best way of effecting it, and shall always give a preference to the action of other remedies. I prefer the action of James's powder, or tartar emetic, or nitrate of potash, or leeches, or, in fact, any remedy which will act with less risk of subsequent mischief.

I have observed that the abuse of active purgatives in the commencement of fever—nay, even the exhibition of cathartics two or three times in the beginning of fever, in persons with irritable bowels, is very apt to induce excitement of the gastro-intestinal mucous surface, giving rise to early and profuse diarrhoea, tympanitis of a bad and unmanageable character, and not unfrequently to disease of the mucous coat of the digestive canal. Great tenderness of the belly, meteorism, and exhausting diarrhoea, are the general consequences of early and continued purgation. In private practice I can generally tell, by examining the patient's belly, whether he has been actively purged in the commencement of the disease or not. I invite you to study the cases that come before you in hospital, with reference to this point; I think you will find in most instances, that the patients who have escaped active purgation before admission will get through the disease with little or no tympanitis. The physician who merely employs mild aperients and enemata—who does not use active purgatives from day to day, as is too often done—will not have his plans of treatment embarrassed by the occurrence of dangerous tympanitis, or obstinate and debilitating diarrhoea; nor will he have the melancholy prospect before him of having an inflammatory affection

of the gastro-intestinal mucous membrane to treat, at a period when neither the condition nor the constitution of the patient will bear anything like anti-phlogistic measures.

As to purging in general, the idea of curing fever by it is quite absurd. In fever all the secretions are affected, and it would be idle to think of altering and improving all by acting on the bowels. Take the skin, for example. Consider what a departure there is from the normal state; observe the quantities of moisture which exude from it without any apparent cause, or its equally inexplicable dryness. Its odour, its feel, its nervous and vascular conditions, are all more or less altered. Take the lungs, in the next place. There is generally some change in the smell of the patient's breath; there is some change, also, in the quantity of the pulmonary exhalation; there is an alteration in the rate and mode of respiration; and I have ascertained, by experiment, that a person in fever does not consume as much oxygen, or give out as much carbon, as he would in a state of health. Observe the functions of the brain, or those of the liver or kidneys, and see how much they have departed from the normal state. Every secretion, every function, is more or less deranged, and will remain so as long as the fever lasts. You have no right to think that you will be able to restore the healthy state of the stomach and bowels any more than that of any other organ. The secretions of the lungs, liver, pancreas, kidneys, stomach, and skin are all deranged, or more or less suppressed, and will not be restored to a healthy state until a crisis comes on, or the disease begins to decline.

As long as the belly is soft and fallen, and where the bowels have been sufficiently opened in the commencement of the disease, I do not feel the least anxiety if the patient remains without having a stool for two or three days. I have, on some occasions in private practice, been induced to consent to the exhibition of a purgative where I did not think it required; and have seldom done so without regretting it afterwards. The patient has been going on well, the belly soft and fallen, no tenderness present, and no distinct evidence of fecal accumulation. All this I have pointed out to the practitioners in attendance with me, but to no purpose. They would generally observe in reply, "Oh! this may be all true; but you see the patient has had no stool for the last thirty-six hours, and it would be quite wrong to let him go on in this way any longer." Indeed, you will frequently meet with cases in which you should exercise much caution in the administration even of enemata. An illustration of this remark occurred to me lately in practice. In a case of fever in which the patient's friends were importunate as to the necessity of opening the bowels, the ordinary purgative injection was prescribed. It proved too active, and produced much irritation of the bowels, giving rise to an increased secretion of gas into the intestines, and a considerable degree of temporary tympanitis.

You will be guided, therefore, in the administration of purgatives, not by the rule of those who are dissatisfied with less than two or three motions in the day, but by the circumstances and exigencies of the case; and you will be cautious in giving purgatives, except where you have good reasons to conclude that there is an accumulation of feces. In this way you will avoid tympanitis, diarrhoea, and inflammatory affections of the bowels; symptoms which always give great annoyance to a practitioner, and tend greatly to embarrass his practice in the treatment of all fevers of a typhoid character.

So far concerning the administration of purgatives as a cure for fever, or as a means of diminishing its violence. You perceive that I think their

employment more than questionable, and in this particular am consequently at issue with Hamilton, and a great number of writers. There are, however, circumstances which may arise during the course of typhus, and may require a free use of purgative medicines; we are then forced to have recourse to purgatives, not in the hope of curing the fever itself, but for the purpose of removing or alleviating certain superadded symptoms.

It may be well to mention some of the chief of these symptoms. One of the most common is determination of blood to the head, producing delirium, headache, &c. In many examples of this nature, occurring at an early period of typhus, purgatives of a very active nature are amongst our most efficacious remedies. Nay, even in the advanced stages of fever, delirium and determination to the head are seldom relieved by tartar emetic, unless it produces very copious, yellow, watery stools. Many patients become uneasy and restless at night in the latter periods of fever, in consequence of insufficient evacuations from the bowels; whenever, therefore, restlessness or sleeplessness supervene unexpectedly, and that the bowels are confined, the occurrence of these symptoms calls for aperients, even though the belly be not very full and tumid. Preternatural fulness of the belly and tympanitis often demand purgatives at any period of the disease.

In some cases, when a troublesome diarrhœa has yielded to astringents, a very obstinate and long-continued state of constipation comes on, apparently connected with impaired muscular power of the intestinal tube. At first the confinement of the bowels produces no uneasiness on the part of the medical attendant, inasmuch as it is unattended by any fulness or tension of the abdomen, and the patient may, in other respects, appear to be doing well. After some days, however, it is judged prudent to excite alvine evacuations, which is attempted cautiously, for the practitioner bears in mind the violence of the previous diarrhœa. He therefore chooses mild purgatives at first, and next day, finding them ineffectual, he ventures on the exhibition of more active medicines, and orders a frequent repetition of injections. Even these steps fail, and constipation continues for several days after the efforts to remove it have been commenced. This is a juncture full of difficulty. In such cases, much caution must be used in employing active cathartics, and great care should be taken to remove any hardened feces which may be present in the rectum or sigmoid flexure of the colon. This must be done partly by the finger, or by means of an appropriate scoop, as, for instance, a marrow-spoon, and by injections of soap and water. When no such mechanical obstructions exist, to account for the failure of the cathartics, we must proceed cautiously, and not rashly accumulate medicines of this description in the stomach and bowels of the patient.

Very active purgatives, though they fail to stimulate the paralysed bowels so as to evacuate their contents, may yet irritate their intestinal mucous membrane, and cause destructive inflammation. For this reason, where moderate doses of colocynth, gamboge, jalap, scammony, rhubarb, &c., have failed, they must not be repeated; neither, except in desperate cases, ought we to administer croton oil internally. The neutral salts, senna, magnesia, and, above all, castor oil, given combined with oil of turpentine, or uncombined and very frequently repeated, must be our chief internal medicines. In some cases, the compound decoction of aloes, with small doses of sulphate of magnesia, will succeed in exciting the paralysed bowels to action, where other and more powerful purgatives have failed. Injections should be perseveringly repeated, and varied both in quality and quantity; and they should

be always thrown as far as possible into the bowel, by means of a flexible tube and Read's syringe. When they are retained, and excite swelling of the belly, as too frequently happens in these cases, we must desist from their use.

This obstinate state of constipation may be supposed to depend on a degree of paralysis of the bowels; for usually in such cases an evident paralysis affects the bladder, causing retention, or its sphincters, giving rise to an involuntary dribbling of urine.

On the subject of bleeding in fever I have but very few remarks to offer. In the first place, with respect to the power which venesection possesses of checking fever, it may be observed, that there can be no doubt that it has frequently been found capable of effecting this purpose, particularly where it has been properly employed, and in conjunction with other means. I speak here with reference to cases in which bleeding has been used under favourable circumstances, and very soon after seizure—as in students, medical practitioners, hospital attendants, soldiers, and seamen. In such persons, and others where circumstances have been equally favourable, there is no doubt that venesection has frequently succeeded in cutting short fever; and if called to a case of typhus within the first ten or twelve hours after seizure, I should have no hesitation in having recourse at once to venesection, followed by an emetic; and my own experience convinces me that I should afford my patient a very good chance of escaping the disease. I have on several occasions succeeded in arresting the progress of fever by these means; and the records of naval and military practice furnish many proofs in corroboration of my statements. I have also the authority of Dr. Cheyne (whose experience on every point connected with fever was immense) in favour of the efficacy of bleeding in commencing fever, as a mode of treatment which has frequently proved successful in his hands. But it is only in the very commencement, and during the stage of rigor, that you can hope to derive any advantage from venesection in cutting short an attack of fever. I do not mean to say that you have in typhus, as in intermittent fever, distinct rigors, lasting each for half an hour, or even longer. By the stage of rigor in typhus I mean to designate the period of formation, during which the patient complains of recurrent chills, although his skin feels hot to the touch when examined by another person. This stage lasts generally from twelve to twenty-four, and in a few cases, to thirty-six hours; and it is only during this stage that you have a chance of extinguishing the fever at once, by the abstraction of blood from the system.

You may also have recourse to venesection within the first day or two, for the purpose, not of arresting fever at once, but of lowering inordinate vascular action in persons of a robust habit, and where the fever sets in with violent headache, great heat of skin, and a firm bounding pulse. We do not, however, at present meet with many such cases, nor are we often called in at a period when venesection might be advantageously practised. The physician seldom sees a case of fever until the third or fourth day, and then it is too late to think of general depletion by the lancet. This explains why venesection is so seldom employed in typhus in our hospitals.

Moreover, in entering on the treatment of any case of fever, you should bear in mind the nature of the prevailing epidemic, and be careful how you proceed with respect to bleeding; and if you take away blood, do not go so far as you would if treating a case of fever under different circumstances, and of a genuine inflammatory character. I know that many persons have asserted that you can bleed in all cases of fever, no matter what the state of

debility may be ; because this, they say, is only apparent, and depends upon congestion and oppression of vascular action. I do not know how far this doctrine may be applicable to former epidemics, but, in the recent epidemics of fever we have had, it certainly does not hold good ; and no man in his senses would think of adopting it as a guide for his practice. I have seen some of the most intense, dangerous, and protracted cases of fever, commence without any appreciable increase of vascular action, with a soft slow pulse, a cool skin, no appearance of congestion of any internal organ, in fact without any symptom which would, even in the youngest and most robust habits, call for the use of the lancet.

Increased vascular action, and this you should always bear in mind, is not in itself a proof of an inflammatory diathesis in fever, but rather one of a set of symptoms produced by the same morbid cause. The heat of skin and rapidity of pulse are, just like the debility, products of the same morbid cause, and not the results of inflammation. You should also recollect that in fever, as well as in other diseases in which the nervous system is greatly deranged, the pulse is not unfrequently a very deceptive guide. In many cases of fever, where the patient happens to be of an irritable habit, the pulse exhibits a degree of thrill and apparent hardness, which might lead an inexperienced or inobservant practitioner into serious errors. I do not mean to say that an inexperienced finger will not be able to distinguish a pulse of this kind from one of genuine hardness, but I know that many persons have been misled by it, and I warn you against the danger.

Again, never use the lancet when there is any, even the slightest appearance of maculæ, no matter how intense the headache, heat of skin, or signs of general vascular action may be. I have seen some cases in which the lancet was used during the presence of maculæ, and I have seen its employment followed by the most lamentable consequences. You should, therefore, never omit to examine the skin, for circumstances might occur which would authorise a moderate use of the lancet, provided there was no sign of maculæ present. Formerly, persons were very much in the habit of employing arteriometry when the headache and delirium were violent, regardless of the period or stage of fever ; and nothing was more common than to see a physician ordering the temporal artery to be opened on the eighth, ninth, or even tenth day. This was very much the practice during the time when the doctrine of typhus being the result of inflammation of the brain prevailed in this country and England, and a very unsuccessful practice it was. You perceive we seldom have recourse to arteriotomy here ; it may be occasionally necessary, and when it is, we employ it ; but as a general practice it does not appear entitled to any merit, nor can we give it our recommendation.

The examples which you have seen in hospital show you that local inflammation arises, generally speaking, at a period when general bleeding is no longer admissible. I shall speak hereafter of the mode in which leeches are to be applied to the head, with the view of relieving headache and cerebral congestion ; it is not necessary that I should say any thing respecting their application to the epigastrium, or abdomen, for the relief of gastro-intestinal symptoms in the beginning of fever, as there is very little chance of your doing any mischief, even by the free use of leeches, at this period : it only remains for me to make a few remarks on the use of leeches and cupping-glasses, in the more advanced stages of the disease.

Well ; your patient, suppose about the ninth or tenth day, gets pain in the side, cough, and increased frequency of respiration, and, on examination,

you find sufficient evidence of the existence of pneumonia. Or he complains of abdominal symptoms, and you have strong reason to think that hepatitis or enteritis is present. Here you will have recourse to leeches or cupping, according to the circumstances of the case. An attack of pneumonia, coming on in fever, frequently acts as a stimulus to the economy; the collapse of fever disappears more or less, and the pulse becomes more firm and resisting. This is a fortunate occurrence, for under such circumstances the patient is better able to bear depletion, and you may proceed at once to apply cupping glasses or leeches to his chest, regulating the quantity of blood you abstract not only with reference to his present symptoms, but also to his future condition. But it sometimes happens that pneumonia occurs at a later period of the disease, and when you cannot use cupping-glasses, or even leeches, to any great extent. In such cases (and the same remark will apply to enteritis, or any other inflammation occurring in the advanced stage of fever), you should leech with great caution. Begin with four or six at a time, and, when they drop off, cover the leech-bites with a cupping-glass. In this way you will know pretty nearly the exact quantity of blood which the patient has lost, and you can arrest it with less difficulty afterwards. You can then have recourse to calomel and opium, or tartar emetic, according to circumstances. Leech as far as you can, and then have recourse to immediate blistering, and such other means as the exigencies of the case may demand.

You may leech, then, freely, and without any particular caution, in the commencement of fever, whether it be for cerebral or for thoracic or abdominal symptoms; but, as the fever advances, you must exercise more discrimination and care, both as to the number of leeches you apply, and the time you allow them to bleed. In applying leeches to the head, I would advise you not to put them on both temples or behind both ears at once, as this is awkward, and prevents the patient from lying on either side. You may also, in cases of cerebral irritation, apply them to the nostrils or *septum narium*; in this way you will be able to get away a large quantity of blood by means of very few leeches, for one or two at a time will be sufficient. In leeching the chest and abdomen, in particular, I advise you never to have recourse to fomentations with the view of getting more blood from the leech-bites. Fomentations are too often a source of fresh mischief in cases of this kind, leading to exposure of the patient to cold, and to the annoyance of having his linen and bedding kept wet for hours together. Always give directions to have cupping-glasses or hot dry flannel clothes applied as soon as the leeches drop off, and you will have less difficulty in arresting its flow afterwards, a point of some importance in cases where the loss of even a trifling quantity of blood is often of great moment, and likely to have a very powerful effect on the state of the patient.

LECTURE XII.

THE USE AND EMPLOYMENT OF BLISTERS IN FEVER.

BLISTERS are employed in a variety of diseases, but are followed by very different physiological effects, and capable of serving very different purposes, according to their mode of application. In fever they are generally employed either as stimulants, or as evacuants and derivatives. As stimulants, they may be used with the intention of rousing the depressed energies of the system in general, by their action on the nervous and circulating systems, or of stimulating the torpid functions of some particular part or organ. With this object in view they are applied as flying blisters—that is to say, for a space of time not exceeding two or three hours, and solely with the intention of producing a stimulant effect. You have seen some cases of fever in our wards, in which the powers of life were greatly depressed, the extremities cool, the action of the heart feeble, the pulse weak, respiration short and imperfectly performed, and a tendency to faintness and sinking; and you have observed that in such cases we derived great benefit from the application of flying blisters over the region of the heart, the epigastrium, chest, and inside of the legs and thighs. We applied our blisters in these situations, left them on for three or four hours, and then removed them; and you have seen them, when employed in this way, succeed in rousing the vital energies, the depressed action of the heart and capillary system, and the flagging state of the respiratory action, as shown by the increased strength of the pulse, the more general diffusion of heat, and the renewed play of the various functions.

In such cases, where the stimulant effect alone is required, it would be wrong to leave the blisters on longer than two or three hours; it will be quite sufficient if they prove merely rubefacient, or, at most, vesicate so slightly as to give to the blistered surface the appearance of a miliary eruption. Here you have all the stimulant effects of blistering, but not followed by their debilitating consequences. You are aware that blisters applied in the ordinary way have a twofold effect; they first rouse, and then depress; acting primarily as stimulants, and secondarily as evacuants. They first act as stimulants, producing pain, heat, and redness of the part; after a few hours these symptoms diminish, and are followed by an effusion of serum—in fact, a quantity of white blood is abstracted from the cutaneous capillaries, and in this way an evacuation is produced, calculated to diminish any accidental congestion in neighbouring parts. The capillaries, by means of their increased action, draw a quantity of white blood to the part; and, in saying this, I think I am only using a perfectly physiological expression, for the quantity of circulating fluid in any part of the body must depend on the vital action of the capillary vessels of that part. It is to the peculiar state of the capillary vessels, as I have proved in a previous lecture, that the quantity of blood in any part is to be referred, and not to the force or frequency of the heart's action. It is by means of changes produced in them that the phenomena of active conges-

you find sufficient evidence of the existence of pneumonia. Or he complains of abdominal symptoms, and you have strong reason to think that hepatitis or enteritis is present. Here you will have recourse to leeches or cupping, according to the circumstances of the case. An attack of pneumonia, coming on in fever, frequently acts as a stimulus to the economy ; the collapse of fever disappears more or less, and the pulse becomes more firm and resisting. This is a fortunate occurrence, for under such circumstances the patient is better able to bear depletion, and you may proceed at once to apply cupping glasses or leeches to his chest, regulating the quantity of blood you abstract not only with reference to his present symptoms, but also to his future condition. But it sometimes happens that pneumonia occurs at a later period of the disease, and when you cannot use cupping-glasses, or even leeches, to any great extent. In such cases (and the same remark will apply to enteritis, or any other inflammation occurring in the advanced stage of fever), you should Leech with great caution. Begin with four or six at a time, and, when they drop off, cover the leech-bites with a cupping-glass. In this way you will know pretty nearly the exact quantity of blood which the patient has lost, and you can arrest it with less difficulty afterwards. You can then have recourse to calomel and opium, or tartar emetic, according to circumstances. Leech as far as you can, and then have recourse to immediate blistering, and such other means as the exigencies of the case may demand.

You may leech, then, freely, and without any particular caution, in the commencement of fever, whether it be for cerebral or for thoracic or abdominal symptoms ; but, as the fever advances, you must exercise more discrimination and care, both as to the number of leeches you apply, and the time you allow them to bleed. In applying leeches to the head, I would advise you not to put them on both temples or behind both ears at once, as this is awkward, and prevents the patient from lying on either side. You may also, in cases of cerebral irritation, apply them to the nostrils or *septum narium* ; in this way you will be able to get away a large quantity of blood by means of very few leeches, for one or two at a time will be sufficient. In leeching the chest and abdomen, in particular, I advise you never to have recourse to fomentations with the view of getting more blood from the leech-bites. Fomentations are too often a source of fresh mischief in cases of this kind, leading to exposure of the patient to cold, and to the annoyance of having his linen and bedding kept wet for hours together. Always give directions to have cupping-glasses or hot dry flannel clothes applied as soon as the leeches drop off, and you will have less difficulty in arresting its flow afterwards, a point of some importance in cases where the loss of even a trifling quantity of blood is often of great moment, and likely to have a very powerful effect on the state of the patient.

LECTURE XII.

THE USE AND EMPLOYMENT OF BLISTERS IN FEVER.

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tion and inflammation are produced ; the capillaries of the affected part enlarge, increase in number, and multiply ; and those which were invisible become visible. These phenomena have been falsely attributed by Hastings and others to debility and impaired action of the capillaries.

Blisters, then, produce first increased action of a part, and afterwards act as evacnants. They also stimulate the system generally ; but if left on until full vesication is produced, they act as evacnants and depletives, and lower the general tone of the economy. I have frequently observed this succession of events in chronic cases, in which it was found necessary to blister repeatedly during the course of the disease. The patients generally told me that they felt better and lighter on the day on which the blister was applied, but on the next day they usually felt weaker and more depressed ; and this state sometimes lasted more than a single day. You may, therefore, apply blisters as excitants and stimulants ; yet there are many persons who seem to forget this distinction. If, in a case of inflammation occurring in a low state of the system, you propose to apply a certain number of leeches over the inflamed organ, they say, no ; but they have no hesitation in applying a large blister, leaving it on until it produces full vesication, and thus abstracting a considerable portion of white blood from the system.

You will not expect me to lay down any general rules for the use and application of blisters in fevers ; you will find all these matters sufficiently explained in your books and manuals. I am not giving anything like a regular outline of the treatment of fever ; in fact, I pass *per saltum* from one point to another, without any attention to order or method. You can read methodical treatises, and then compare them with such detached observations as I shall make. And here allow me to make some cursory remarks on that peculiar state of the brain which we most commonly observe in the middle stage of typhus, and in which blisters form one of our most efficient, and in some instances our only mode of relief. In many of the cases of typhus which come under our observation in hospital, we frequently meet with a train of symptoms strongly calculated to perplex and puzzle, and which should seldom exist in fever regularly treated ; these are chiefly cases which are admitted in the middle or latter stage of the disease, and at a period when the patient's state of intellect is such as to preclude the hope of obtaining any satisfactory information from a personal examination.

A man in the lowest class of life, and at a distance from medical aid, is attacked with fever ; for the first eight or ten days he is either improperly treated or altogether neglected, and in this state symptoms arise and superinduce others, causing the most unfavourable complications, and rendering the cure difficult, if not impossible. Now, of all the symptoms which occur in cases of fever, where the state of the principal organs has been neglected, there are none more formidable or more fatal than the cerebral ; nor is there any local affection in fever, in which the value of prevention is so unequivocal and decided. What I wish to impress upon you is, that you should always anticipate the cerebral symptoms in fever. Never allow the cerebral symptoms to explode—watch the first scintillæ of cerebral excitement—repress the commencing mischief, and do not permit your patient to be overtaken by formidable inflammation of the brain.

Every writer will tell you that when the patient's face is flushed, his eyes suffused, and when he complains of headache and intolerance of light, you should leech and blister his head, give him purgatives, tartar emetic, James's powder, and the medicines calculated to bring down cerebral excitement :

but a careful and observant practitioner will anticipate all these symptoms, although there is as yet no particular flushing of the face, headache, or suffusion of the eyes; and though the patient is still quite rational, he will recognise threatening disease of the brain, and take proper steps to prevent its increase. Watch the functions of the brain attentively, and they will inform you, in almost every case, of the approach of cerebral symptoms.

You will find in patients who are about to have cerebral symptoms, a degree of restless anxiety, and a higher degree of energy than accords with their condition; and they either do not sleep at all, or their sleep is broken by startings and incoherent expressions. When you speak to a person in this state, he answers in a perfectly rational manner; he will tell you that he has little or no headache; and were you to be led away by a hasty review of his symptoms, you would be very likely to overlook the state of the brain. If you inquire closely, you will find that he scarcely ever sleeps, or even dozes—that he is irritable, excitable, frequently incoherent, and muttering to himself. Under such circumstances, although there is no remarkable heat of scalp, suffusion of the eye, or headache, I am frequently led to suspect the supervention of cerebral symptoms, particularly about the ninth or tenth day of the fever (for it is generally about this period that cerebral symptoms begin to manifest themselves); and whenever I observe these premonitory indications, I never hesitate in taking proper measures to anticipate the evil. I immediately order the hair to be shaved off, and blister the whole scalp. Thus, at the period when disease of the brain would most probably have set in, I have the whole external surface of the head pouring out serum, or even suppurating; and when by this treatment I have opposed a barrier to the further progress of the disease, the exhibition of a little tartar emetic will soon remove every trace of it. In laying down this plan of treatment, I have supposed that the patient has been properly treated from the beginning, and that the earlier symptoms of inflammatory excitement have been combated by bleeding, leeching, and other appropriate depletory measures.

There is, on the other hand, an opposite state of the patient, which in like manner informs me that danger to the brain is at hand. In this case, the patient is almost continually sleeping. When you enter his chamber in the morning, and ask how he does, his attendant generally tells you that he has passed the night most favourably, and that he has slept without almost ever waking since your visit on the preceding afternoon. If he awakens to take drink, he quickly drops asleep again, and when you rouse him he looks rather heavy; there is some slight suffusion of the tunica adnata, and some appreciable congestion about the external parts of the face and head. Persons in this state, though apparently doing well, and even where they have been properly treated in the beginning, about the ninth or tenth day begin to rave, and exhibit undoubted proofs of congestion and excitement of the brain.

Now, in all cases of this description, be on your guard, and do not allow symptoms of dangerous import to steal on you. Here you will derive great benefit from the use of blisters. I was lately called to a very remarkable case of this kind, at some distance from Dublin. The patient slept almost constantly, and complained of no headache or heat of scalp. From an attentive examination of the case, however, I was led to predict the approach of cerebral symptoms. Observe, this was a case of spotted fever; and in this form of fever you can predict the occurrence of such symptoms with a greater degree of confidence. The patient's pulse was 96, his tongue presenting nothing worthy of remark, his behaviour and speech rational, and his sleep

almost constant. Recollecting, however, the period of the fever, and observing carefully the condition of the cerebral functions, I had his head shaved and blistered. Notwithstanding this precaution, his cerebral symptoms had proceeded so far that he subsequently got a slight attack of paralysis of the face and tongue, accompanied by a fixed state of the pupils, which would neither contract nor dilate. After having blistered his head extensively, I gave him the tartar emetic solution, to the amount of one-eighth of a grain every second hour. The measures were completely successful in removing the cerebral symptoms, and I have no doubt that the active precautions which had been taken were the means of saving his life.

There is one symptom connected with cerebral excitement in fever which is well worthy of your notice, as its existence is often sufficient of itself to give timely intimation of the approach of irritation or inflammation of the brain. This is the state of the respiratory function. In fever, the breathing will often announce the approach of cerebral symptoms for days before their actual occurrence. When, in cases of typhus, you find the patient's breathing permanently irregular, and interrupted by frequent sighing—when it goes on for one or two minutes at one rate, and then for a quarter or half a minute at another rate, you may rely upon it that sooner or later an affection of the brain will make its appearance. You will frequently observe the same kind of breathing preceding attacks of apoplexy and paralysis, and indeed it was the occurrence of this symptom, in these and other cases in which the functions of the brain were deranged, that first drew my attention to this kind of breathing. The first time it engaged my attention was in a remarkable case of an apoplectic nature, which I sat up a whole night to watch. On recollection I found that I had frequently observed an analogous state of the respiratory function in fever on several occasions, although its connection with excitement of the brain had not struck me before. I speak here of irregularity of breathing, independent of any pectoral affection. But when the patient breathes in a permanently irregular manner, at one time at a certain rate, and at another at a different rate,—when his respiration is suspicious and heaving, without any disease of the chest or great debility,—you will have some grounds to suspect the existence of cerebral derangement. I am in the habit of calling this kind of breathing *cerebral respiration*, because my experience has told me that it is almost invariably connected with oppression and congestion of the brain.

To recapitulate:—When you find a patient in fever lying constantly awake, or when, on the contrary, you find him continually slumbering,—when there is a certain quickness of manner and irritability,—and when the cerebral respiration has been noticed for some time, without any concurrent debility or pulmonary disease,—under such circumstances, you may, in cases of maculated typhus, predict the approach of cerebral symptoms; and the period about which they generally manifest themselves, is the eighth, ninth, or tenth day. Now, in cases of this description,—if you have previously used leeches and antiphlogistics to a sufficient extent,—your best plan will be to shave and blister the whole scalp.

Dr. Little of Belfast, and Mr. Kirby of this city, have fallen into the same train of ideas, and employ blisters at a very early period of the disease, with the view of combating cerebral excitement. In a recent instance, in private practice, I think I saved the life of a young gentleman in Harcourt-street, by extensive blistering of the scalp on the fourth day of fever. We were not accustomed to blister at this early period of fever. Formerly it was the

practice to bleed and apply leeches for several days together, and never to have recourse to blistering until towards the latter stage of the disease. In common inflammation, or in arachnitis, we do not blister until we have carried depletion by the lancet, leeches, and purgatives, as far as the patient's strength will allow. But this is not the case in fever; the cerebral congestion and irritation, or inflammation, (call it which you will,) which accompanies typhus, differs essentially from ordinary arachnitis or encephalitis, and requires very often a treatment strikingly different.

One physiological fact connected with sleep may be noticed here. It has been stated by Mr. Mayo, that the pupils are contracted during sleep. This is in itself a very curious fact, and I was anxious to verify it. Now we had an excellent opportunity yesterday morning of trying what the state of the pupil was, in two patients who lay soundly sleeping in the fever ward. We came up softly to them as they lay on their backs, and in a most favourable situation for observation, just opposite one of the windows; and having opened the eye-lids, found that the pupil was actually contracted to the size of a pin-hole. It remained in this state for a while, and then expanded, when they awakened. This is a very curious fact, and appears to be a very beautiful instance of the protective care of nature. To protect the eye while we sleep, nature, as it were, draws the curtain, and thus defends the delicate organ from any accidental dazzling, at a period when consciousness slumbers and is off its guard.

I have hitherto spoken of blistering in fever chiefly as a powerful revulsive remedy in the treatment of cerebral congestion; let us now treat of its employment with other objects in view. In the first place, as has been already explained, blisters may be used as most energetic stimulants in cases where the powers of life flag, and threaten a sudden cessation. Occasionally, in fever, you will find the vital tone reduced to a very low pitch, the heart uncertain in its action, the pulse irregular, the respiration feeble, the skin cool, and the patient so weak that he cannot be lifted up, or even turned in bed, without having a tendency to faint. Here we have to superadd to the ordinary treatment of fever the prompt exhibition of remedies calculated to meet such emergencies, and in addition to internal stimulants we have recourse to powerful stimulation of the cutaneous surface, by what are termed flying blisters. One of the best remedies in such cases is a large blister applied over the region of the heart, to be left on for two or three hours, or until the vascular action of the skin is sufficiently excited. When the patient appears to labour not only under sudden weakness of the heart, but also of the capillary and nervous systems, as shown by coldness of the extremities and sinking of the pulse, it will be necessary to apply flying blisters not only over the region of the heart, but also over various parts of the chest, the epigastrium, and the inside of the legs and thighs. You will find this plan of treatment frequently succeed in cases which have a very unpromising aspect. I have now witnessed many instances of this description, in which, from cold, neglect, or debilitating treatment, the patients appeared moribund, with lividity of the extremities, hippocratic face, cold skin, and failing pulse; and I have seen them saved, as it were miraculously, by the use of carbonate of ammonia, musk, and wine, and the application of warm fomentations to the limbs, followed by a succession of flying blisters.

Let us take as an illustration the case of Christopher Nolan, which I trust you have all watched with attention. When this man came into the hospital his condition appeared to be completely desperate, he has however, not only rallied, but is now convalescing rapidly. It is unnecessary for me to enter into a detail

of his case, as I trust you have all observed it through its different stages; I shall only remark, that on his admission he was labouring under fever of the worst character, his body was covered with maculæ, he lay constantly on his back, and had low muttering delirium, was unable or unwilling to answer questions, his breathing was oppressed, his pulse rapid, small, and failing, the powers of life awfully prostrated,—in fact, he was in a state of apparently threatening dissolution.

My first object was to rouse the sinking powers of the system, and with that view I adopted the following treatment. He was put into a comfortable bed, and heat was restored to the surface by diligently rubbing his trunk and limbs with warm flannel. I next ordered a succession of flying blisters to the neck, chest, and abdomen. I may observe here, that his chest was heaving, there was a general wheezing audible over the whole surface, and he had that peculiar livid expression of countenance and dusky hue of skin, which indicate an imperfect aeration of the blood. With the view of stimulating the oppressed action of the respiratory nerves, I had two blisters applied, one on each side of the neck, above the clavicle; after remaining on for two hours these were removed, and two more applied over the supra-mammary region, then over the heart and right side of the chest, and lastly over the epigastrium. In addition to this, he was ordered to have some wine and chicken broth, and a stimulant draught was prescribed, to be taken regularly every second hour until symptoms of reaction began to appear.

In employing blisters in this case, my object was to stimulate powerfully and in rapid succession the integuments of the neck, chest, and abdomen. This practice has in such cases been attended with very marked results, and in ours proved extremely valuable. Its efficacy seems to depend not on the discharge of serous fluid, or on any revulsive action of the blisters, but on the powerful stimulus applied to an extensive cutaneous surface.

Blisters applied extensively to the shaven scalp are not only valuable in fever, but also in other diseases, and that under circumstances in which little benefit could be expected. The same effects may be produced by rubbing the whole scalp with tartar emetic ointment; but, from the pain and inflammation it produces, this proceeding is seldom adopted. I have, however, occasionally employed it; and on two recent occasions with the most fortunate results. A friend of mine had lost two children from hydrocephalus. About five weeks ago another child, an extremely fine boy, was attacked with symptoms of the same disease. After having laboured for a fortnight under fever, with great restlessness, vomiting, and diarrhœa, he was observed to utter frequently that faint cry which is so characteristic of hydrocephalus, and to roll his head constantly from side to side. These symptoms were soon afterwards succeeded by constant motions of the right arm and leg, and subsequently by paralysis of the opposite side. I was consulted before the paralysis occurred, and advised the child's father to have the whole of the blistered scalp well rubbed with tartar emetic ointment. The boy recovered completely. I derived also a very striking advantage from the use of the same remedy in a very remarkable epidemic which attacked a family in the neighbourhood of Rathmines, and which was witnessed throughout its whole course by Dr. Burke and myself. One of the family, a young lady, was attacked with symptoms of fever, accompanied by a pain in the back of the head, and stiffness of the neck. After a few days, symptoms of inflammation of the cerebellum and upper part of the spinal cord became developed. About the seventh day she got strabismus, and soon afterwards was attacked with

convulsions : the pupil became permanently dilated, and she was quite blind. I was called to see her at this period, and found her almost in a state of insensibility, with involuntary discharge of urine and feces, cold extremities, and irregular pulse. Thinking that nothing could be done for her, I was about to leave the room, when I asked the nurse could she swallow ? She replied she could, and immediately proceeded to offer the young lady some drink, which she swallowed without any difficulty. This at once arrested my attention. I said to myself, if this patient can swallow, she must be still conscious, and while she is so, there is a chance of saving her. I ordered the whole of the scalp, which had been previously blistered, to be rubbed with tartar emetic ointment ; violent inflammation ensued, and she recovered completely. But the curious part of the case is this :—her brother and sister were attacked in exactly the same way, a few days afterwards, although less formidably, and were cured by the same treatment. Shortly afterwards two of the servants got pain in the back of the head and stiffness of neck, followed by signs of an inflammatory affection of the cerebellum and spinal cord. They were treated in the same way, and recovered.

What could be the cause of this peculiar fever, manifesting itself in exactly the same way in all the individuals of the family who were attacked ? I endeavoured to arrive at the cause, but could not ; and I merely state the facts, without wishing to attempt any thing like an explanation. But the history of this extraordinary form of disease is exactly as I have told you.

The next use to which we apply blisters is in the treatment of those pulmonary affections which arise during the course of typhus. From what you have seen of the present epidemic, you must be convinced that bronchitis is one of its most frequent complications, and that few persons pass through fever without having some affection of the bronchial mucous membrane. You are also aware, that when bronchitis attacks the more minute ramifications of the bronchial tubes, it is very apt to produce congestion and engorgement of the lung. We meet with pneumonia much less frequently in fever, but it is occasionally observed, and requires the most prompt and decided treatment. In pneumonia, as well as in congestion of the lungs accompanied by inflammation of the smaller bronchial tubes, blisters afford us a most valuable adjunct to the other means which we employ, and admit of being used in cases where no other mode of depletion could be safely borne.

The affections of the lung in fever are of no small importance, and the stethoscope has not conferred a greater benefit on practical medicine, than by indicating, in diseases of the chest, not merely the existence of disease, but also its locality, extent, and precise nature. It points out to us the portion of the chest in which the bronchial tubes are chiefly engaged, and informs us with certainty when the affection of the smaller tubes has given rise to pulmonary engorgement. The experienced stethoscopist will in such cases be aware of the exact site and nature of the affection, where the mere symptomatic practitioner would be unable to acquire any thing more than a loose and undefined notion of pulmonary disease. The latter employs his depleting means at random, and frequently abstracts a large quantity of blood with little benefit to his patient ; the former, aware of the precise situation and extent of the disease, applies his leeches or cupping glasses immediately over the engorged or inflamed portion of the lung, and relieves his patient at the expense of a comparatively small loss of blood. The same observation will apply with equal force to the use and application of blisters.

A good and accurate knowledge of the various stethoscopic phenomena is

besides of so much more value in the treatment of fever, as at certain seasons of the year almost every case of fever will be complicated with pulmonary derangement; and it may happen, during the course of an epidemic, that the lungs may be the organs which are chiefly engaged. Although cerebral disease is at present the principal source of danger in fever, it may not be so always. A change may take place in the character of the epidemic; the cerebral symptoms which are now of such frequent occurrence may become unfrequent, and we may have the organic affections chiefly limited to the viscera of the thorax. I have seen many cases of fever in which the principal source of danger was connected with the chest, and where an accurate knowledge of the stethoscope was indispensable to a correct and successful plan of treatment.

Now, when you have recourse to blisters in treating pulmonary affections, whether these affections be simple or complicated with typhus, it would be well to recollect that much good may be effected without leaving the blisters on for a long time, or until they rise fully; and also that, when risen, it will not be necessary to cut them at once and let out the effused serum. In treating the bronchitis of children, and in the bronchial affections of fever, I have frequently directed the blister to be left unopened; and I can state, from experience, that this plan answers very well. The effused serum forms one of the best dressings for the excoriated surface of the skin, and the formation of troublesome sores is avoided. I frequently have recourse to this mode of treating blistered surfaces in children, and persons of irritable habit, in whom the cutis is extremely tender and vascular. Such persons, when blistered, will often have profuse discharges, first of serum, and afterwards of sero-purulent matter, from the denuded surface, accompanied by torturing pain, loss of rest, and considerable irritation of the general system. I have seen the discharge continue to flow profusely for five or six days; in fact, to such an extent as to wet several napkins in the course of a day, and expose the patient to the risk of an aggravation of the pulmonary symptoms, in consequence of his linen becoming so frequently moistened as to require repeated shifting.*

In all cases of children and persons of an irritable habit, I would therefore advise you to let the blisters alone, particularly where they have been applied to the fore part of the chest, or any other part not exposed to pressure or friction. As soon as the blister rises, apply over it a piece of lint smeared with spermaceti ointment, which can be renewed as occasion requires, and leave the rest to nature. I was forcibly struck some time since with the difference of result between this and the ordinary practice, in the case of a young gentleman residing in Camden-street, who had a severe attack of bronchitis towards the termination of fever. A blister had been applied to his chest in the morning, and another in the middle of the day. The first had been opened freely, and dressed in the usual way; but the other, which had risen about the time I was called in, was left untouched at my request. The one which had been opened caused such a degree of irritation and restlessness, that it was found necessary to give him an opiate every night; the other gave little or no inconvenience, and healed up much sooner. A still better

* In pulmonary diseases, this continued discharge is often very useful, and should be encouraged by dressing the vesicated surface with the French blistering paper, or what I have found equally useful, that prepared by Mr. Bewley of this city: but in fever the production of such effects from blisters must be avoided, as a surface thus denuded of its cuticle, and inflamed, may be converted into a dangerous sore.

method is that recently proposed by Dr. Douglas MacLagan of Edinburgh—dressing the blistered surface with cotton. The blister is left on for five or six hours, according to circumstances, a poultice then applied for two hours, and, the raised cuticle having been removed with a pair of scissors, the raw surface is covered with a thick layer of French wadding. It heals completely in about twenty-four hours, but is so little painful after twelve hours that percussion and auscultation may be performed over the part—of course without disturbing the cotton, a matter of much importance in pulmonary affections.

If I have done nothing better, I think I deserve some merit for being the first to reprobate the practice of keeping on blisters for twelve, eighteen, and twenty-four hours, and for having shown, by numerous experiments, that a much shorter period of time was required to ensure the full effect of these remedies. When I commenced the practice of medicine, blistering was looked upon by most sick persons as one of the severest trials of their patience, and the agony which it caused in some irritable habits was almost insupportable. Blisters were left on for twelve, eighteen, and even twenty-four hours, and, when at length they were removed, the whole epidermis of the blistered part came or was torn away, leaving behind a raw irritable surface, from which large quantities of serum and pus were effused for several days, to the great torture and inconvenience of the patient; and, not content with this, the practitioners of that time generally dressed the excoriated surface with some sharp stimulant ointment, so that the blistered surface most commonly resembled that of a severe burn.

Ask those who are our seniors in practice, and they will tell you what blistering was some thirty or forty years ago. They first produced excessive irritation of the skin, by leaving the blisters on too long; they then irritated the denuded surface with stimulating ointments, and in this way brought on extensive sores of a bad character, which remained long after the disease for which the blisters were applied had disappeared, and which formed, in fact, a new ailment, requiring new medicines and additional attendance. If you look over Mr. Moore's account of the principal remedies employed in the practice of Dublin physicians about the period I allude to, published in the tenth volume of the *Dublin Journal of Medical Science*, you will find that nothing was more common than the application of stimulant, and, as they were termed, digestive ointments, to blistered surfaces. I was among the first who assailed this barbarous treatment, and showed that all the good effects of blisters might be secured by leaving them on for a much shorter space of time. I proved by numerous experiments, that in many cases it was not necessary to leave them on more than four or five hours in the adult,* and that they might then be removed and the blistered part dressed with spermaceti ointment. In addition to this, you entirely avoid the irritating effects which blisters are known to produce on the urinary organs. You will very rarely meet with dysuria, or hematuria, where the blister has been left on for the spaces of time I have mentioned.

Blistering is then to be used with the restrictions I have mentioned, and you will find it a most valuable aid in the treatment of fever and its complications. It may be employed either as a derivative and revulsive, or you may

* Of course blisters applied to the scalp must be excepted. They require at least twelve hours. In old persons generally the skin is much less vascular than during youth and middle age; and consequently, in the old, blisters require a much longer time to produce the desired effect.

have recourse to flying blisters over the various parts of the body, in certain forms of fever, where there is marked and sudden depression of the powers of life.

Speaking of depression of the powers of life, reminds me of a curious incident which occurred some time ago in my practice, and which shows the value of being acquainted with the peculiar habits and idiosyncrasies of families. I attended, with Mr. Kirby, about three years since, a gentleman of middle age and active professional habits, who had been attacked with fever. I was first called to see him on the ninth day of fever, and found him apparently moribund. His pulse was intermittent and irregular, the action of the heart tumultuous, the respiration feeble, and the extremities cool. Mr. Kirby had instantly ordered internal stimulants, and blisters to the region of the heart and epigastrium. The patient rallied, and ultimately recovered. It is to be observed, that the group of formidable symptoms just enumerated had supervened quite out of the usual course, and without any previous warning. They were consequently not only alarming but unexpected. About a month afterwards, Mr. Smyly and I were called to see this gentleman's brother, who was living at Dundrum, and who was supposed to have caught fever from his close attention on his brother during his illness and convalescence. What was most remarkable in the case, was that his pulse began to flag and intermit, and he likewise suddenly and unexpectedly got the same symptoms of depression of the vital powers on the very same day and hour as his brother. His symptoms also continued for the same length of time, and yielded, or spontaneously ceased, under the same plan of treatment. In some families you will find a very curious coincidence between the play of the various functions in disease, as well as in health, and you should neglect no opportunity of making yourself acquainted with the family peculiarities and idiosyncrasies of your patients, as knowledge of this description is of the greatest value and importance in the treatment of disease.

LECTURE XIII.

WARM FOMENTATIONS TO THE HEAD IN FEVER.—USE OF MERCURY.—SUBSULTUS TENDINUM.—CEREBRAL SYMPTOMS.

I have already laid before you my views as to the use of general and local bleeding in fever, and pointed out the circumstances under which they might be employed. In treating of general bleeding, I stated that we used it at the commencement of fever, with a view of checking the disease altogether, or of rendering it milder and less dangerous, by moderating excessive inflammatory action, and controlling cerebral excitement. I have also spoken of the use of leeches and blisters, and it only remains for me to say a few words respecting the application of cold to the head as a means of moderating or removing symptoms of cerebral excitement.

In Dr. Southwood Smith's Treatise on Fever, you will find many cases and arguments to show that where headache and delirium are present, and where the lancet is inadmissible, if you place the patient in a warm bath, and direct a forcible small stream of very cold water on his head, he soon becomes more calm, experiences great relief of his headache, and is frequently brought back to bed quite free from cerebral symptoms. The burning heat of the skin is quickly replaced by a sensation of coolness, or even cold, the flushing of the face disappears, the delirium vanishes, and a favourable crisis is often produced. Indeed, the effects of this remedy are extremely remarkable, and I have no doubt that many of the cases in which I have employed tartar emetic with such signal advantage would derive equal benefit from this mode of treatment.

The cold affusion, as recommended by Dr. Smith, and practised at the Charité Krankenhaus, at Berlin, is most certainly an excellent and energetic remedy, and I regret that we have not apparatus in this hospital for applying it; but I fear its utility must be, at least for some time, limited to public institutions, and that it cannot be employed to any extent in private practice. There is a good deal of prejudice against applications of the kind in this country. At the time that cold affusions were used in the treatment of scarlatina, much mischief was done by their indiscriminate employment, and this added to the general feeling of dislike towards them. At all events, cold affusion is a remedy which requires an apparatus seldom at the command of the physician in private families, and, indeed, I think that in most cases we may do very well without it.

You are all aware that, in cases of determination to the head, the common practice is to shave the scalp, and apply cold lotions. In my lectures I have repeatedly pointed out the imperfect and even hurtful mode in which this remedy is ordinarily applied, and endeavoured to show that it is calculated rather to increase than diminish the heat of the integuments. Cold lotions act as a powerful refrigerant, if constantly repeated, so as to keep the part below the standard temperature of the body. But this is seldom or never done. The nurse applies the lotion, and then, perhaps, drops asleep, or

occupies herself with some other business, until at last she is attracted by the vapour arising from the patient's head, and then she renews the application. I need not say, that in this way all the good effects of cold, as a refrigerant are entirely lost, and that a degree of reaction is produced which must altogether mar and nullify its application. I have, therefore, given up, except in very few cases, the practice of applying cold lotions, and give a preference to the use of warm fomentations of equal parts of vinegar and hot water, applied to the temples and shaven scalp, and frequently repeated. I am quite sure we employ warm applications for the relief of headache and cerebral symptoms much less frequently than we ought. You are aware that surgeons are in the habit of treating some local inflammations with warm, and others with cold applications, and that the rules laid down for distinguishing the cases in which cold, and those in which warm fomentations should be used, are deficient in precision, and that most commonly the practitioner has to refer to his own individual experience for the guidance and determination of his choice. So it is, also, with respect to the use of fomentations to relieve the pain and congestion of internal parts, among which I include determination to the head in fever, accompanied by intense headache, restlessness, and delirium. In some cases of this description, cold applications will give ease; in others, most relief is obtained by fomenting the head with water as hot as it can be borne.

The idea of employing hot fomentations in cases of this description was first communicated to me in 1833, by the late Mr. Swift, who became accidentally aware of their value whilst washing his face one day in very warm water, at a moment when labouring under severe headache. The sudden relief obtained by the application of hot water induced him to try it exclusively in the headache of influenza, and with the most satisfactory results. In the influenza which appeared in this country in 1833 and 1837, and again recurred in 1847, one of the most remarkable symptoms was intense headache. This was accompanied by great debility, and was not amenable to the ordinary modes of depletion. Now, in the first of these epidemics, Mr. Swift found that by applying water as hot as it could be borne to the forehead, temples, and back of the head, great and almost instantaneous relief was obtained, and that in this way he was able to keep a most unpleasant symptom in check, while he was taking measures to remove the disease. I have also heard from my friend Dr. Oppenheim, of Hamburg, that he had discovered that this was the best means of affording relief under the same circumstances. Mr. Swift's observations first led me to think of applying hot fomentations to the head in other diseases, and although I cannot give you any particular rules for determining the cases in which you should employ them, I can say that you will generally find warm vinegar and water the best and most efficacious application in the ordinary headache of fever.

I shall next offer you a few observations on the use of mercury in fever; and, first, are we to have recourse to mercury or not in typhus? I do not allude here to its use as an aperient; but, when called to treat a case of fever, are you to proceed at once to bring the patient's system under the influence of mercury? Are you, in addition to the other measures usually adopted in the treatment of fever, to go on with the administration of mercury until you affect the mouth, and bring on salivation? This was the practice in my earlier days, and great confidence was placed in it by the majority of practitioners. It has been also very extensively recommended by army and navy surgeons in the treatment of tropical fevers, but I must confess that I am not

at all inclined to adopt this practice, and that I have seen abundant reasons why I should neither employ nor recommend it. In the first place, we have observed in our wards that patients with other diseases have frequently caught fever from exposure to infection, at a time when they were fully under the influence of mercury. In the next place, we have observed that persons who were thus attacked with fever while in a state of salivation did not escape better than others, and that in them the disease ran its full course, aggravated rather than diminished in its danger by the pre-existing mercurialisation. These facts I have frequently seen verified in hospital and private practice.

You perceive, then, that mercurialisation neither protects a man from the contagion of typhus, nor does it produce a favourable modification in its type or progress. Again, I have repeatedly witnessed the daily and continued exhibition of mercury in fever, and I cannot recollect a single case in which it appeared to check the disease, moderate its symptoms, or bring about a favourable crisis. I am aware that, in entering my protest against this practice, I dissent from a very considerable body of my brethren, who, from the beginning to the end of fever, never cease in their attempts to bring the patient's system under the influence of mercury. I am convinced that, in the cases in which recovery is stated to have followed this practice, the *post hoc* has been mistaken for the *propter hoc*. Besides, fever is one of those affections in which you will find it extremely difficult, and often impossible, to bring the system fully under the influence of mercury. There are certain states of the system which prevent altogether the full operation of mercury, and bad typhus is one of these states. Where fever has laid deep hold of the constitution, you cannot affect it with mercury. When a patient recovers who has been mercurialised during the course of fever, he does not recover because his system came under the influence of mercury, but he comes under the influence of mercury because he recovers from the fever. Add to this, that mercury is a remedy which requires a peculiar regimen, and that it is very apt to engross the practitioner's attention, and prevent him from the exhibition of remedies which are more directly indicated, and in reality more useful.

These considerations, and others, have convinced me that the exhibition of mercury in fever, with the view of touching the gums, is injudicious and unnecessary. There are, however, cases in which you will be compelled to have recourse to mercury, whatever the stage or the type of the fever may be. Whenever inflammation of some internal organ—as, for instance, of the lungs—arises during the progress of fever, you must employ mercury at once; and cases of pneumonia, which would have proved fatal, have on numberless occasions been treated successfully by mercurialisation. But under ordinary circumstances, and were there no indication similar to that which I have just pointed out, I do not see any advantage to be derived from the use of mercury. I am not, therefore, in the habit of employing mercury in fever. Sometimes I use calomel as an aperient, and I frequently prescribe small doses of hydrargyrum cum cretâ, with the view of gently stimulating the liver, and preventing the tendency to congestion of the intestinal canal; but farther than this I am not in the habit of going; and I never, except in cases of pneumonia, or inflammation of some internal organ, attempt to bring the patient's system under the influence of mercury during the course of typhus.

Allow me here to digress a moment from my subject, and make a few observations on the case of the man Cassels, which terminated fatally in our

wards within the last twenty-four hours. I wish to call your attention to this case more particularly, as I think a different plan of treatment might have succeeded in saving the man's life. This man was admitted into the fever ward about the seventh or eighth day of his illness. I cannot exactly state how he was treated in the commencement, but I believe he was very badly attended, and that the state of the principal organs was wholly neglected. It will be sufficient to observe, that when he came under our care the chief features of his case were delirium, accompanied by total want of sleep, and a violence of conduct and behaviour calling for the restraint of the strait waistcoat. Now, under circumstances of this nature, the most diligent attention and promptitude are imperatively demanded on the part of the physician, and every step calculated to anticipate danger should be instantly taken. I regret to say that I did not at the time take a correct view of the treatment or precautions necessary to be adopted under such exigencies. I did not expect that the case would terminate fatally in such a short time, and I anticipated benefit from the remedy prescribed. He was ordered to take the tartar emetic solution in full doses; but, on visiting him next morning we found that he had obstinately refused to take his medicine, and that his symptoms were greatly aggravated.

In delirium of this kind it is certainly very difficult to manage the patient, and we are frequently obliged to have recourse to force and stratagem to make him take his medicines. I regret extremely that this man's head was not leeches on his admission, as, from the state of his pulse, I think he would have borne it well. Eight leeches might have been applied to his temples, and repeated two or three times the same day, according to the state of his pulse and strength. I think I was wrong in contenting myself with ordering the tartar emetic solution and a blister to his head, and I should have anticipated, from the violence of his behaviour, that it would be very difficult to manage him.

In cases of this kind, where it is necessary to give tartar emetic (and this is one of the best remedies you can employ in cases of cerebral excitement in fever), you should be always prepared to obviate any omission arising from the obstinacy of the patient; and when he will not take his medicines voluntarily, you may secure its effects on the system in two different ways. In the first place, it may be secretly mixed with the patient's ordinary drink; and as such persons are generally thirsty, and seldom refuse drink altogether, an intelligent nurse will readily find means to make the patient take a sufficient quantity of it to secure its full effect on the cerebral circulation.

Another expedient which you may resort to in similar emergencies, is to give the tartar emetic in the form of enema. I had recourse to this plan sometime since, in a similar case of delirium, and with the best results. After leeching the head, I gave the solution of tartarised antimony in enema; and this can be always done, whether the patient likes it or not, if you take care to prevent his struggles by confining him in a strait waistcoat. The best way of administering it is to dissolve two or three grains of tartar emetic in four or five ounces of mucilage of starch or isinglass, and inject it with the aid of a long flexible tube, so as to make the contents of the syringe pass high up into the bowel. In this way you can secure all the good effects of tartarised antimony, in overcoming the congestion of the brain, and procuring sleep.

In all cases of alarming congestion of the head in fever, I have been long in the habit of using tartar emetic in this way, if the stomach be deranged, and incapable of bearing it safely; and I can assure you that it is a most

fortunate thing to have such a powerful resource in all cases of the kind. I have also not unfrequently given expectorant medicines in the same way, where from the state of the stomach, or the debility of the patient, the ordinary remedies could not be administered by the mouth with sufficient rapidity, or in sufficient quantity to produce the desired effect. In this manner I have often given the infusion of ipecacuanha—a remedy of very considerable value, and not sufficiently appreciated by most modern practitioners. I may also remind you that vomiting, and all the benefits derivable from it, may be likewise thus produced. Of course, the cases in which these expedients are required are comparatively rare, but the practical physician must be always prepared for such exigencies, and be provided with means of meeting them.

Another of our patients died also within the last few days in the fever ward. He laboured under a very bad form of maculated fever, and when admitted was evidently in a hopeless state. I shall not say anything about this case, except to use it as an occasion for making a few observations on a particular state of the cerebro-spinal system, which we not unfrequently observe in cases of maculated typhus, and occasionally in other varieties of fever. Now you observed that this man had not the slightest tendency to sleep; that he lay with his eyes constantly open, raved incessantly, had subsultus tendinum, floccitatio, and cold extremities, and often attempted to get out of bed. Yet we could not find in him anything like decided evidence of cerebral inflammation. The tunica adnata was of a clear pearl white, the face pale, and the scalp and integuments of the face cool. You perceive, then, that sleeplessness, delirium, and subsultus tendinum may depend on a state of the nervous system having no connexion with congestion of the brain, or determination of blood to the head. This occurrence has struck me very forcibly in many cases of fever. But I have been most particularly struck with the occurrence of subsultus tendinum in such instances. In the present case we had a patient with sleeplessness and subsultus. But this concurrence of symptoms does not always exist.

You recollect the case of the boy in the small fever ward, who laboured under excessive subsultus, and to whom we gave the oil of turpentine in drachm doses with so much benefit. Yet this boy, as you all remember, slept remarkably well. I have frequently pointed out to the class, patients labouring under subsultus tendinum, who slept well, and in whom the tunica adnata was of a pearl white colour, without the slightest suffusion. We have subsultus, therefore, occurring in two very opposite states of the nervous system; we have it accompanied by loss of sleep, and we have it existing in that condition of the system where the patient slumbers long and heavily, and cannot be easily roused. Hence I am inclined to think that the cause of subsultus resides not so much in the nervous centres as in their extremities.

I would even go so far as to advance the proposition, that if it were possible for the fever to go on, and life to continue after the removal of the brain and spinal cord, I am quite sure that the subsultus would continue. I am almost confident that subsultus tendinum is the result of some derangement of the nervous extremities. I shall show hereafter, when lecturing on the subject of paralysis, that the nervous periphery may become diseased primarily, and without any antecedent affection of the brain or spinal cord. I think it extremely probable that in fever the nervous centres are subject to certain derangements producing coma, sleeplessness, and delirium, but that there are other nervous symptoms which are to be referred rather to a derangement of

the nervous extremities, and among the latter I would particularly include *subsultus tendinum*, a symptom which we find co-existing with such opposite conditions of the nervous centres.

But to return to the case to which I first alluded. Never blister in the early stage of fever, until you have applied leeches in sufficient quantity. In this case, it is true, we could not well ascertain what the period of the fever was; for the man was brought in, in a state of delirium, and there was nothing known respecting his previous history. You are all aware that a great deal must depend on our knowledge of the period of the fever, and the medicines which have been employed. Had we been acquainted with these circumstances, it is probable we would not have fallen into the error we committed. What I wish to impress on you is, that in all cases of maculated typhus, you should be careful in examining the head, and ascertaining whether there are any evidences of cerebral congestion present. If there be headache, strong pulsation of the carotids, suffusion of the eyes, and heat of the face and scalp, along with the other signs of functional lesion of the brain present, you should have recourse to leeching; beginning cautiously, and continuing their application as long as the patient will bear it with safety. When you have the symptoms already mentioned, and the patient is in the early stage of fever, you may commence by applying one or two leeches to the nostrils, or six or eight to the temples or behind the ears, repeating them two or three times a day, according to the exigency of the case. The best way of using leeches is to apply them in small numbers every six or eight hours, so as to keep up a constant drain from the head. After you have leeches sufficiently you may then have recourse to blisters. In making this change much will depend on the sagacity and skill of the practitioner; for it requires no ordinary tact to hit on the proper time when you should give up leeching and commence with blisters.

I shall make no apology for introducing here what I consider to be an important observation, with reference to the pathology and treatment of fever. We had a striking instance of the fact on which I am about to offer some comments, in the case of a little girl who died lately here, in a very remarkable manner. Every fever which commences with vomiting and diarrhoea, whether it be scarlatina, or measles, or typhus, is a fever of a threatening aspect; and in all such fevers the practitioner should be constantly on the watch, and pay the most unremitting attention to the state of the brain. There is much difference between the vomiting and diarrhoea of gastro-enteritis and this *cerebral diarrhoea and vomiting*. The latter sets in generally at a very early period of the disease, perhaps on the first or second day, and is seldom accompanied by the red and furred tongue, the bitter taste of the mouth, the burning thirst, and the epigastric tenderness which belong to gastro-enteric inflammation.

There is also another source of diagnosis, but of a less valuable kind; and this is founded on the results of treatment. Gastro-enteric vomiting and diarrhoea are relieved by leeching the belly; but I need not tell you that this mode of treatment can have no effect on the vomiting and purging produced by cerebral disease. There is also another means of distinguishing: the vomiting and diarrhoea which result from gastro-enteric inflammation are never accompanied by such copious discharges of bile as when they depend on disease of the brain. In diarrhoea from derangement of the brain the quantity of bile passed is very remarkable; and it is equally curious, that when vomiting follows derangement of the cerebral circulation, in ordinary

cases, and without fever, bile is thrown up in very large quantities. This is frequently observed in persons who become sick from swinging or sailing. In such instances a larger quantity of bile is vomited than could occur from mere gastric irritation. Now, in the commencement of cerebral disease, where congestion or inflammation is present, one of the first symptoms is copious vomiting and purging of a bilious character. This is very often the case in scarlatina, and there are few cases in which there is more danger to be apprehended. We had these symptoms, under very unfavourable circumstances, in the little girl to whom I have just alluded. From the imperfect history of the case which we were able to obtain, it appeared that she had been ill of fever for fourteen days before her admission, and had in addition a severe attack of bronchitis and pneumonia. She then got inflammation of the stomach, and finally congestion of the brain, as indicated by the cerebral vomiting and purging. We employed every means in our power to check these symptoms, but without success; she went on from bad to worse, and she ultimately sank under a combination of affections, which you will frequently observe in many forms of disease as well as fever; and it is to this point in particular that I wish to direct your attention.

You will frequently observe that at a certain period of fever, whether it be inflammatory, nervous, bilious, or typhoid, and very often in other forms of disease, whether depending on a general affection of the system, or connected with inflammation of important organs, when the patient has been going on pretty well for some time,—you will find that about the period when you would naturally expect the fever to go off, and convalescence begin, a new form of fever makes its appearance, and carries off the patient in spite of all your exertions. To this form of secondary fever I would give the name of *scrofulous*, because it resembles in its chief features the intractable form of fever which is frequently observed in persons of an originally scrofulous habit, or who have become so from the abuse of mercury, or other debilitating causes.

This is a subject which is not well understood, and I am not acquainted with any author who has devoted to it that share of attention to which, from its great importance, it has such decided claims. Its chief characters are that the patient, during its existence, exhibits a strong tendency to inflammatory affections which bear a close analogy to the scrofulous, both in their intractable character, in the facility with which they pass from one organ to another, and in their frequently unfavourable termination. A patient of this description, while labouring under fever, will frequently exhibit a very remarkable succession of inflammatory affections. If, during the course of his fever, he gets an attack of gastro-enteritis, you will have great difficulty in managing it; and no sooner is this overcome than he is seized with bronchitis or pneumonia; and when, by great care and the most skilful treatment, you have overcome this also, he gets scrofulous inflammation of the brain, and dies.

Now you will frequently meet with patients who, during the course of typhus, will be attacked with this bad form of fever, and get what may be termed scrofulous inflammation of the brain, which carries them off in five or six days, in spite of all your care. You are aware that persons who are much in the habit of observing diseases of the brain, can generally distinguish between *scrofulous* inflammation of the brain and its membranes, and that inflammation which occurs in persons of healthy habit. In cases of the latter description, the treatment, if commenced at the first appearance of the

disease, is simple and successful. Appropriate bleeding and leeching, with the use of calomel and James's powder, are almost always sufficient to accomplish a cure. When once you have succeeded in touching the gums with mercury, the patient's safety is tolerably certain, and recovery is in general rapid. But in the scrofulous affections of the brain, although you may have fully mercurialized your patient, you will too often discover that you have merely retarded the progress of the complaint for a brief period; it grows bad again, and carries him off in spite of all your efforts.

In the scrofulous hydrocephalus, a much greater time elapses from the appearance of coma and strabismus until death takes place, than in the ordinary forms of meningitis. This fact was well illustrated in the case of the girl to which I have just now referred: she continued to live on for a long time after the appearance of symptoms which you would think ought to terminate fatally in a few hours after they had been developed. There is also a great deal of irregularity in the way the symptoms come on in cases of scrofulous inflammation of the brain. Sometimes blindness is one of the first symptoms. I recollect having been called, with Dr. Beatty, to see a very fine boy living in Merrion-square, and was very much struck, on entering the drawing-room, to find him walking about, and in apparent good health, but quite blind. Here amaurosis was the first symptom. This was subsequently succeeded by others, and he died in a convulsive fit about a fortnight afterwards.

We have many excellent observations on the chronic scrofulous fever, but I think that there is no author who has described this acute form with the precision and care which it deserves. It is, however, a very frequent form of fever, and you will see many examples of it among the chronic patients in the medical and surgical wards. You will frequently observe persons who are labouring under acute disease, from accidents or other causes, become feverish and ill again at a time when you expected a remission of their symptoms, or even recovery; and, without any assignable cause, they will get scrofulous inflammation of some other part or organ, and quickly fall into a state of hopeless and incurable disease.

LECTURE XIV.

HEAD SYMPTOMS IN FEVER.

I spoke at my last Lecture of a man named Cassels, who died in the fever ward with symptoms of cerebral excitement, and stated that I regretted having omitted to leech his head, and prescribe tartar emetic in the form of enema. Since that time we have had an opportunity of examining his body, and the results of the dissection are well worthy your attentive consideration. He was a young man of robust habit and apparently good constitution, and laboured under the ordinary form of maculated typhus. Shortly after his admission he was attacked with delirium, which was soon afterwards followed by coma and death.

Now, suppose you were called to see a patient not labouring under typhus, but exhibiting a similar train of symptoms—that is to say, violent delirium, accompanied by flushing of the face, suffusion of the eyes, headache, and a tendency to get out of bed—in fact, a state of furious excitement requiring the restraint of the strait waistcoat—what idea would you be likely to form of the condition of the brain? If a patient of this kind had no typhoid symptoms, you would certainly say that he was labouring under meningitis or cerebritis; and if the case proved fatal, you would naturally expect to find lesions of the brain fully sufficient to account for all his symptoms. And you would in all probability find extensive thickening of the membranes of the brain, with sub-arachnoid effusion, or you would discover softening, increased vascularity, and suppuration of the encephalic mass.

But here a man in fever exhibits all the symptoms of cerebral inflammation; the cerebral affection runs on to a fatal termination with great rapidity; he dies comatose. And what do we find on dissection? Doubtful signs of congestion, and no distinct evidence of inflammation, a slight opacity of the arachnoid at the base of the brain, and about a teaspoonful of clear sub-arachnoid effusion. Now this is a point to which I would earnestly call the attention of every inquiring student. A patient, during the course of typhus, is seized with symptoms which are generally regarded as characteristic of congestion and inflammation of the brain; he dies, to all appearance in consequence of the intensity and violence of these symptoms, and, on dissection, little or no trace of cerebral disease is found. In the case under consideration, the symptoms present were strongly indicative of congestion, if not of inflammation; and had the man been free from typhoid symptoms, you would expect to find decided traces of inflammatory mischief. This seems to prove that, in the production of cerebral symptoms in typhus, some cause not to be recognised by the production of cerebral lesions, or in other words something besides mere congestion or inflammation, exists. I have now examined a great number of cases of this description, and the examination has brought home to me a strong conviction, that the delirium of fever depends upon something more than mere inflammation or congestion.

There is another fact, the study of which is well worthy of attention, as it appears to support very strongly the views I have put forward ; and that is the occurrence of analogous symptoms under opposite conditions of the cerebral circulation. Take, for example, the phenomena of vertigo and headache. Now these symptoms are found in states of the brain which are directly opposite. In incipient congestion of the brain, in that turgescence of the cerebral vessels which precedes apoplectic seizures, one of the most frequent symptoms is vertigo, and the same thing may be affirmed with respect to headache. But we observe the very same symptoms under circumstances totally dissimilar. Frequently, while bleeding a patient for some affection of the lungs or bowels, or for some accident, we find that after a certain quantity of blood has been lost, the patient becomes pale ; and while the pallor is coming on, he often gets quite giddy, and sometimes complains of headache. Gentlemen who are attending lying-in hospitals are well acquainted with the headache, giddiness, and tinnitus aurium, so constantly complained of by females who have suffered from excessive uterine hemorrhage.

Hence you perceive facts are not wanting to show that opposite states of the cerebral circulation, a superabundance or deficiency of pressure on the brain, may give rise to similar phenomena. You saw an illustration of this in the case of one of our patients in the fever ward this morning. He was quite free from headache as long as he remained in the horizontal posture, but the moment he sat up in bed he complained of headache. Yet this was a man who had not the slightest symptom of determination to the head, and who had been sufficiently depleted during his illness. You will also recollect the fact, that persons who have had a long illness, and remained for many days in the horizontal posture, generally get weakness, giddiness, and sometimes headache, when they first attempt to sit up during convalescence.

This is a point which should be always borne in mind. You are consulted by one person who complains of giddiness, tinnitus aurium, and frequently recurring headache. You examine the patient carefully, and you find all the symptoms of unequivocal determination to the head. You are applied to by another person labouring under the same symptoms ; but how different is the state of the brain found to be on a careful examination. One patient is robust, of florid complexion, and with a hard bounding pulse ; the other is a weak chlorotic female, who has been ailing for months, and whose pulse is so weak that a slight degree of pressure obliterates the canal of the artery. Yet the tinnitus aurium, giddiness, and headache complained of by the latter are just as bad and as troublesome as in the case of the former.

From a consideration of these points you will perceive that, for the production of cerebral symptoms in typhus, there must be something more than mere congestion or inflammation of the brain ; but you are not to infer from this that there is no necessity for taking any steps to obviate or remove congestion of the head in fever. On the contrary, I am of opinion that in typhus one of the principal sources of danger is connected with the head, and that the cerebral symptoms should be always watched with the most unremitting and anxious attention.

It is this which constitutes the great difference between the mortality in private and hospital practice. In private practice the physician is called at an early period of the disease, and has an opportunity of checking the cerebral symptoms before they rise to a dangerous height ; but hospital patients, in general, are admitted at an advanced stage of fever, and in many instances have been improperly treated, or wholly neglected from the commencement.

I am also of opinion that when there is any evidence of determination to the head, the best way of preventing dangerous cerebral symptoms is to deplete the head by the application of a sufficient number of leeches, and then to proceed to the use of blisters. You should direct your attention as much to the head as to the bowels, and one of the best modes of doing this is to apply six or eight leeches behind the ears, and repeat them every six hours until relief is obtained. You should then order the head to be shaved, and kept constantly covered with cloths wet with warm vinegar and water, and at the same time have recourse to the internal use of tartar emetic and nitre, or blue pill with James's powder. Should this plan fail in giving relief, you have a powerful aid in the application of blisters to the scalp, and this must be done extensively, and at once.

Most of the fatal cases of typhus at present die of cerebral disease; but in the majority of instances you will find that these were cases in which the head was neglected, and in which the appropriate remedies were used too late. In cases treated from the commencement with judgment, decision, and attention, although the head may be threatened, you will not have one-twentieth of the mortality observed in cases where the early prevention of cerebral symptoms has not been an object of care. One of the worst cases of cerebral disease which I have witnessed for many months, and which would have probably terminated fatally before the seventh day, I saw in consultation with the late Mr. Daly, and yet this case was saved by prompt and decided measures calculated to counteract the cerebral symptoms.

I have also very recently witnessed another remarkable case of this description at Bray. The patient, a gentleman very full and plethoric, but remarkably temperate, aged thirty-five, was attacked after exposure to cold by intensely violent maculated fever, for which aperients of an active nature were exhibited. I saw him in consultation with Dr. Heffernan on the sixth day. His headache had been relieved by leeching, but his breathing was very quick, and he was almost constantly asleep. Skin very hot; eyes somewhat suffused; most copious crop of maculæ. We at once blistered the whole scalp; and on the eighth day blistered it again, and also the nape. On the ninth day the cerebral symptoms, *which we had been endeavouring to anticipate*, came on, but probably our treatment prevented them from being fatal; for when they appeared, the application of tartar emetic ointment induced a purulent discharge from the whole surface of the twice blistered scalp, in the course of a few hours, and three grains of tartar emetic given in divided doses that day procured a complete cessation of the symptoms, after—mark—after the pupils had been dilated, and one fit of slight paralysis of the mouth and tongue had taken place.

The result of all my experience in fever is, that the majority of fatal cases are rendered so, in this country at least, by severe cerebral symptoms supervening sooner or later in the disease. Delirium, sleeplessness, stupor, convulsions, extreme subsultus, jactitation, sluggish and dilated, or else extremely contracted, pupils—these are the symptoms we have to fear after the fever has lasted some time; and, let me repeat it, the chief art of the physician consists not so much in remedying these symptoms as in anticipating them. When he judiciously attempts this, he may not, indeed, always succeed in preventing their supervention, but he will, in many cases, be successful in diminishing their violence, and preventing their usually disastrous effects.

Permit me next to direct your attention to the case of the patient Murphy, who died last week. This case excited a good deal of our attention at the

time, and I wish to make some further observations on it while it remains fresh in your minds.

It was one of those mixed cases of typhus in which, as the fever advances, we observe the usual phenomena of determination to the head, accompanied by a train of symptoms which bear a close analogy to those of delirium tremens. Among the pauper population which we have to treat, you will frequently meet with cases of this description. We witnessed many examples of it here, but not so many as are to be seen in other hospitals. It is a melancholy but well-known fact, that a great proportion of the diseases which come under our notice, in the acute as well as in the chronic form, are more or less complicated with intemperance.* This you should never forget. In persons of the lower class, who are addicted to the daily use of spirituous liquors, you will find disease assuming a thousand unfavourable shapes and complications. You will find their fevers intermixed with various symptoms of an anomalous or dangerous character, and their chronic affections embarrassed by organic and visceral disease. You will be repeatedly struck with the strange and protean character which disease assumes under the influence of an habitual intemperance; and you will often, in the course of your practice, have to endure the annoyance and disappointment of seeing your patient carried off by some new and unexpected malady, after you have succeeded, by infinite toil, ingenuity, and prudence, in removing every trace of his primary affection.

The case of Murphy was one of those which have been neglected in the beginning, where the vantage ground has been lost, and the chances of success are diminished almost to nothing. You have observed that all the fatal cases of fever which we have had in hospital were cases admitted at an advanced period of the disease, and in which the head had been neglected. You have also observed how exceedingly difficult it must be to treat cases of this description. The patient is admitted at an advanced stage of fever, and at a period when he can give no account of his present or past symptoms, or the mode of treatment to which he has been submitted. He comes in with delirium, or coma, and subsultus tendinum; his symptoms are certainly cerebral, and he exhibits, perhaps, a blistered scalp; but we can have no means of ascertaining whether he has had headache, heat of scalp, throbbing of the carotid and temporal arteries, or vertigo,—we cannot, in fact, decide with precision as to the exact state of the brain, and our practice must be embarrassed by more or less doubt and obscurity. I have already impressed upon your attention the urgent necessity of watching the head in fever, and I think I cannot too often reiterate the advice which I have given you, to endeavour to check cerebral symptoms before they amount to any degree of absolute danger. The fate of those who have died here will convince you that when cerebral disease has once arrived at its acme, the most energetic measures will often fail in arresting it. It is a matter of vital importance, then, to prevent this lamentable state of things, and, as I have already remarked in this lecture, without waiting until the symptoms of cerebral disease manifest themselves, to anticipate its very origin, and thus be enabled to control with certainty, symptoms which assume such a fearful aspect in cases where cerebral disease has been allowed to go on unregarded. This is the practical lesson which I wish you to draw from the four fatal cases which have occurred in this hospital within the last month.

* Since this lecture was delivered, a great change for the better has been effected by the efforts of the Rev. Mr. Matthew; the poorer and working classes of Ireland are now for the most part distinguished for temperance.

There are some points in the case of Murphy to which I wish to recal your attention, as I am anxious that you should make them the subject of reflection. For some days before his death he had been delirious and unmanageable, with total loss of sleep, and a contracted state of the pupil. The antiphlogistic and derivative treatment had been employed without effect ; and seeing that his symptoms were advancing, and his sleeplessness undiminished, I ventured to give him an injection, consisting of two grains of tartar emetic with ten drops of laudanum. I am cautious in the administration of opium in the advanced stage of fever, where there is evidence of determination to the head ; and it was on this account that I ordered it to be combined with tartar emetic, giving also directions that the effect of each dose should be carefully watched. He got three enemata during the course of the night—that is, thirty drops of laudanum altogether. He dozed after the last injection, and appeared more tranquil ; but at our morning visit we found him in a state of coma, with rapid sinking of the powers of life, and death took place in the course of a few hours afterwards. I must confess the issue of the case gave me some degree of uneasiness at the time, as I thought it might have been precipitated by the administration of the opium. I could not say but that even this small quantity of opium might have greatly aggravated the cerebral symptoms, and accelerated the fatal event.

Dissection, however, revealed the true cause of death. On opening the brain, we found extensive arachnoid inflammation, some effusion on the surface of the brain, and an intensely congested state of its vessels. The patient, altogether dissipated in his habits, and greatly reduced by fever, had been a young man of rather robust constitution previous to his illness ; he had been neglected in the beginning of his fever, which, from the phenomena observed after death, must have been characterized by early and decided determination to the brain, producing delirium, watchfulness, coma, and a contracted state of the pupil, which all our antiphlogistic measures were inadequate to remove or control. We did everything in our power : we leeches, blistered, and gave tartar emetic, but without effect ; the case had not come under our care until symptoms of unmanageable cerebral disease had been established.

This state of delirium, followed by contraction of the pupil and coma, and terminating in death, occurs in two classes of cases ; first, in hospital patients of the lower class, who have been neglected in the commencement of fever ; and secondly, in persons in the better classes of life, in whom the mind is frequently subjected to over-exertion, and who, when attacked by fever, exhibit a strong tendency to the early development of cerebral symptoms of a bad and unmanageable character. One of the worst symptoms observed in such cases is extreme contraction of the pupil. I have seen the pupil in some cases contracted to the size of a pin-hole ; and I think I can state, that out of all the cases of this description which I have witnessed, there were but two recoveries. I have seen persons who had exceedingly bad and alarming symptoms of cerebral derangement recover, although accompanied by great dilatation of the pupil ; but I think I have seen but two cases recover in which the pupil was contracted to the small size observed in Murphy.

With these facts fresh in your minds, allow me to direct your attention to the case of another man, who died lately in the fever-ward with cerebral symptoms of an intense character. Now, in this man the very same train of phenomena was present which we observed in Murphy's case. He had, you recollect, typhus of a low character, accompanied by delirium, subsultus, and the ordinary symptoms of determination to the head. I defy any man who

compared these two cases together to point out any remarkable difference between them. The delirium, nervous excitement, and watchfulness commenced the same way in both, and ran through the same course; both had contraction of the pupil, constant muttering and delirium, persistent watchfulness, and subsultus tendinum; and, in both, the cerebral symptoms terminated in coma and death. I would defy the most accurate symptomatologist to point out any marked distinction between them. Yet how different were the phenomena observed on dissection! In the one there was extensive lesion of the membranes of the brain; effusion on its surface, and intense congestion of its vessels; in the other, there was no appreciable departure from the normal condition. But it is not in typhus alone that we meet with the occurrence of analogous symptoms in cases which exhibit a very different state of the brain after death. We are encountered with the same puzzling contrarieties in many cases of scarlatina. Cases come under our notice in which the patients appear to die entirely from the violence of the cerebral symptoms, and yet, on examination, we find very dissimilar states of the brain. In some, there is palpable and fatal lesion; in others, there are some dubious marks of congestion, quite insufficient to account for the symptoms; or the brain is found to be perfectly sound and normal.

It would appear that in scarlatina and fever, the poison of the disease exercises a deleterious influence on the brain, independently of inflammation, but capable of producing an analogous train of symptoms. Hence it is in many instances extremely difficult to distinguish the cerebral symptoms produced by the poisonous influence of fever on the brain, from those which depend on true inflammation. The one gives rise to delirium and fatal coma as well as the other; and in the advanced stage of fever, when the manifestations of nervous energy are feeble and imperfect, and when the circulating and respiratory organs act with diminished power, the distinction between mere irritation and actual inflammation becomes a matter of great difficulty.

In alluding to the occurrence of analogous symptoms under opposite conditions of the brain, I noticed that headache, tinnitus aurium, and giddiness, have been observed in cases where there was distinct evidence of determination to the head, as well as where there was every reason to believe that the supply of blood to the brain was greatly diminished. You will find a very curious illustration of this fact in the first volume of Guy's Hospital Reports, which contains a very interesting paper from Sir Astley Cooper, on the effects produced by tying the carotid and vertebral arteries. Among other results, it appears that when the supply of arterial blood destined for the brain is diminished, the animal experimented on becomes stupid, is to a certain extent incapable of voluntary motion, and exhibits a very remarkable dilatation of the pupils. This is an extremely curious fact. You are all aware that dilatation of the pupils has been long regarded as one of the most characteristic signs of extravasation and increased pressure on the brain; and yet it appears the very same condition of the pupil is observed when you cut off the supply of arterial blood to the brain. We are, I fear, as yet very much in the dark as to the derangement of function which occurs in the brain under opposite states of its vessels; and I think we have equally imperfect and confused notions of the changes which take place in that organ as the result of fever.

Dilatation of the pupils is usually regarded as a sign of increased pressure on the brain; and when hydrocephalic symptoms are present, it is generally looked upon as pathognomonic of effusion. Yet from the experiment just alluded to, we find that dilatation of the pupil is also the result of a state of

things in which we cannot suppose the existence of anything like increased pressure on the brain. When I speak of increased or diminished pressure on the brain, I am not prepared to maintain that such is actually the case, or that when a man becomes giddy and faints after bleeding, the actual quantity of blood circulating in the brain is diminished, and consequently the amount of pressure; but when a man gets headache, vertigo, or syncope, from the loss of blood, it must depend upon causes different from those which are connected with congestion of the brain, or extravasation on its surface, or into its substance. What I wish to impress upon your minds is, that dilatation of the pupils may be connected with very opposite states of the cerebral circulation; and that in fever it cannot of itself be regarded as a sign of paramount value in determining the existence of congestion or inflammation of the brain.

It may not be amiss to mention briefly on the present occasion, the details of a very remarkable communication, by Surgeon Russell of the 73rd regiment, formerly a pupil in this hospital. This communication was read by Dr. Wilson, at one of the *soirées* of the College of Physicians in London, and afterwards published in the *Medical Gazette*. Mr. Russell observes:—

“I was led, by the following circumstance, to reflect on the nature of *coup de soleil*; which, as well as I can recollect, is treated of by all authors, and is generally considered to be nothing more or less than true apoplexy, produced by the direct influence of the sun’s rays; that its pathology is the same, and its mode of treatment similar—that is, that all the efforts of the medical attendants should be directed to the head, as the chief, nay, almost the only, seat of the disease; and here it strikes me a fallacy exists, leading to erroneous principles of practice. In May, 1834, while I was in medical charge of the 68th regiment, (a fine corps, composed of men in robust health), then recently arrived at Madras, the funeral of a general officer took place; to which, unfortunately, the men were marched out at an early hour in the afternoon, buttoned up in red coats and military stocks,—at a season, too, when the hot land winds had just set in, rendering the atmosphere dry and suffocating even under shelter of a roof, and when the sun’s rays were excessively powerful. The consequence was, that after proceeding two or three miles, several men fell down senseless. As many as eight or nine were brought into hospital that evening, and many more on the following day; three died—one on the spot, and two within a few hours. The symptoms observed (and they were alike in these three cases) were, first, excessive thirst, and a sense of faintness; then difficulty of breathing, stertor, coma, lividity of the face, and in one, whom I examined, contraction of the pupil. The remainder of the cases, in which the attack was slighter, and the powers of reaction perhaps greater, or at all events sufficiently great, rallied; and the attack in them ran on into either an ephemeral or more continued form of fever. The symptoms of these three cases did not more closely resemble each other than did the post mortem appearances. The brain was, in all, healthy; no congestion or accumulation of blood was observable; a very small quantity of serum was effused under the base of one, *but in all three the lungs were congested even to blackness through their entire extent*; and so densely loaded were they, that complete obstruction must have taken place. There was also an accumulation of blood in the right side of the heart, and the great vessels approaching it.”

Since our last meeting, some cases of fever have occurred in our wards, which have presented too many points of interest to be passed over without

any observation. A very curious case occurred here, in a man named Toole, who was admitted on the 4th of January. This patient is a robust labouring man, about thirty years of age, and had been ill with fever for ten or eleven days before admission. Of his previous history we could learn nothing; but when he came under our care he appeared very ill, and exhibited great depression of the vital energies, so that we found it necessary to encourage reaction by the application of heat to the surface of the body, frictions, warm fomentations, and the internal administration of wine and carbonate of ammonia. On the following night reaction became established; next day he became irritable and restless, and towards night was seized with delirium. The nurse omitted to report his state to our apothecary Mr. Parr, or the resident pupil; he was thus left without any treatment until next morning. Now, this is a matter of much regret to me, and I think I cannot do a more essential service to those who are about to enter on the practice of their profession, than to impress, as strongly as I can, the indispensable necessity of watching fever patients with the most anxious and unremitting diligence. In a case of bad fever a single visit in the day will never suffice; two, and even three visits will be required; and when the patient is in a doubtful or dangerous condition, it will be often necessary to have a properly educated medical person in constant attendance, prepared to meet every emergency, and counteract or modify every unfavourable change. Fever will often run on for several days without any change calculated to arrest our attention, or call for the adoption of any new measures, and yet, in the space of six hours, an alteration may occur, of which the physician should have early and full information.

Well, this man remained without any treatment for several hours after delirium commenced. On the 6th we ordered his head to be shaved and leeches, and prescribed tartar emetic, in doses of a quarter of a grain, every second hour. Next day we found him as bad as ever. The tartar emetic had failed in diminishing the cerebral symptoms, and his delirium had rather increased. We found also, on enquiry, that he had no sleep for the last three nights. His pulse was weak and rapid, his eyes suffused, his restlessness and delirium such that he required a person to sit by him constantly, and prevent him from getting out of bed. Under these circumstances, we ordered five drops of black drop to be added to each dose of the tartar emetic mixture, of which he took an ounce every third hour, that is, about a quarter of a grain of tartar emetic. He took four doses of this during the night, and next morning we found that the delirium and sleeplessness continued still unabated, and that the man was sinking fast into a state of stupor and insensibility. He neither answered questions nor put out his tongue when desired; he had subsultus, and was muttering to himself with great volubility and rapidity of utterance. Indeed, his condition was such that I had no hope. Among other symptoms, I should mention that he had contraction of the pupils, a symptom of very unfavourable augury in fever. Having failed with tartar emetic alone, and afterwards with tartar emetic in combination with opium, I had now to seek for some other means of subduing cerebral irritation, and in this emergency had recourse to the use of turpentine—a remedy which I was inclined to adopt in preference to any other, as there was some fulness of the abdomen, and other symptoms indicating the existence of congestion of the intestinal mucous membrane. I therefore ordered two drachms of the oil of turpentine to be made up into a draught with a little oil and mucilage, and administered every second hour.

I was guided here by a knowledge of the fact, that turpentine exercises a very remarkable influence over many forms of nervous irritation. I can refer for illustration to many affections of the nervous system characterised by excitement, in which turpentine has been employed with the most signal benefit. Thus, we frequently find it a most valuable agent in the treatment of chorea, of epilepsy, and of the convulsive fits of children. We have frequently experienced benefit from its use in the treatment of spasmodic affections of the stomach and bowels; in hysteria, tympanitis, and the subsultus of fever we often derive from it the most rapid and effectual relief. You recollect a case of typhus which was lately under treatment in our wards, and of which one of the most prominent symptoms was general and continued subsultus; and you have all witnessed how much relief the patient obtained from small doses of oil of turpentine. Hence I was led to conclude that it might be employed with benefit in the latter stages of fever, where vascular excitement is greatly abated, and where the most prominent symptoms are irritation of the nervous centres, with more or less congestion of the gastrointestinal mucous membrane. In this case, however, I must confess I used it as a last resource, and did not anticipate the very striking results which followed so unexpectedly. After the second or third dose the patient had two or three full motions of the bowels, and shortly afterwards fell into a sound and tranquil sleep, from which he awoke rational and refreshed. He is now wonderfully improved in every respect, and I have no doubt that his convalescence will go on favourably.

There is one symptom in this man's case which is worthy of your attention, as connected with the history of fever, although in other respects it does not seem to possess much importance. I allude to the bullæ which have appeared on the calves of his legs, on the inside of the ankles, and on the soles of the feet. This affection seems to belong to that class of eruptive diseases which are occasionally observed during the course of idiopathic fevers, particularly those which have arisen from the introduction of an animal poison into the system. Thus, we sometimes find an eruption of pustules, sometimes of vesicles (as the miliary); occasionally we have bullæ, and not unfrequently erysipelas.

We have had another case of spotted or eruptive typhus, in a man named Henry Harpur, which has exhibited in the strongest manner the value of a combination of tartar emetic and opium in diminishing cerebral irritation, and bringing about a favourable change in cases characterized by symptoms of alarming and imminent danger. Those who have witnessed Harpur's case will confess that few cases could present a more unpromising appearance. He had violent delirium, requiring the restraint of the strait waistcoat, a furious aspect, suffusion of the eyes, constant raving and muttering, and perfect sleeplessness. His pulse was weak, thready, and rapid; his tongue and lips parched, fissured, and black; his breathing quick and irregular; and his cerebral symptoms of such intensity as to leave little or no ground for hope. In addition, he had continued and general subsultus, and constant irregular motions of the extremities. Now, this man has been rescued from a state of the most imminent danger, and restored to convalescence, by the use of tartar emetic and opium. Those who saw the case two days since, and who have noticed the remarkably improved state of the patient to-day, will agree with me in saying that so favourable a result could scarcely be expected. In this case the tartar emetic and opium were combined with musk and camphor. Where great subsultus tendinum is present, in addition to the usual symptoms of cerebral excitement, I am in the habit of combining musk and camphor with tartar emetic, in the following form:—

R. Mucilaginis Gummi Arabici, fʒss.
Syrupi Papaveris albi, fʒj.
Antimonii Tartarizati, gr. ij.
Camphoræ, gr. xv.
Moschi, ʒij.
Aquæ, fʒivss. Misce.

The camphor should be previously triturated with a few drops of alcohol, and the whole must be rubbed up into the form of an emulsion, of which a table-spoonful is to be taken every second hour, until copious discharges of fluid yellow fecal matter take place—an occurrence always attended by much relief of the cerebral and nervous symptoms, and which marks the period at which we ought to desist from the further use of tartar emetic. In the case which we are now considering, the medicine was administered in draughts, each of which contained half a grain of tartar emetic, ten grains of musk, five grains of camphor, and about ten drops of laudanum. After taking three such draughts, the patient fell into a quiet sleep, which continued for several hours. He awoke quite rational; and since that period his improvement has been steady and progressive. I have not time to enter any further into the particulars at present, and merely allude to it as one of those instances in which we have succeeded in allaying symptoms of cerebral excitement, where the state of the patient afforded very little grounds for any hope of a favourable termination.

LECTURE XV.

BED-SORES IN FEVER.—CONTAGION.—SYMPTOMS OF CONGESTION OR
INFLAMMATION OF THE BRAIN IN FEVER.

A WOMAN has been admitted lately who had been labouring under fever for a considerable time before she came into the hospital. This poor creature seems to have been in very miserable circumstances during her illness ; her bedding must have been totally neglected, and no attention paid to cleanliness, for on her admission, though nearly free from fever, she was covered with bed-sores to a frightful extent. Almost every point which had been subjected to pressure had ulcerated, and the ulcers went on undermining the skin, and committing terrible devastation in the areolar substance. Cases like this require great care and unremitting attention ; it is on the exercise of an active and untiring humanity that the cure will mainly depend. In the first place, you are to recollect that the efforts of the constitution towards the re-establishment of health are impeded by the irritation of the sores ; sleep is prevented, and the patient kept in a state of continued suffering, while a constant drain from the system is kept up by the ulcerative discharge, adding to the amount of existing debility. Hence a pseudo-febrile state arises, characterized by quick pulse, restlessness, and want of sleep, somewhat akin to that which is produced by scrofulous irritation. The appearance, however, of general excitement of the system should never prevent the physician from adopting every mode of strengthening the patient as much as possible. You will not succeed in removing this condition by an antiphlogistic regimen ; the patient requires tonics and narcotics, with a nutritious but not stimulating diet. If you put him on a low regimen, and give anti-febrile medicines, you will do mischief, you will increase the existing debility, and add to the source of febrile excitement. Your practice should be to prescribe a nutritious diet, wine, and the sulphate of quina, and to treat the sores with stimulant applications. The local application which we find most beneficial in such cases, is one composed of two ounces of castor oil and one of balsam of Peru, which is to be applied on pledgets of lint, and covered with a poultice of linseed meal two or three times a day. In addition to this, we direct the sores to be washed night and morning with a solution of chloride of soda, in the proportion of twenty or thirty drops of the saturated solution to an ounce of water. We also direct the patient to lie occasionally on her face, and enforce the strictest attention to cleanliness on the part of the nurse. Dr. Arnott's hydrostatic bed is an excellent adjuvant in the treatment of this disease.

Such, then, is an outline of our mode of treatment of bed-sores in fever. We order the patient nourishing, but not heating food ; we give wine, regulating its quantity according to its effects on the system, and the liking of the patient ; we prescribe small doses of the sulphate of quina, and administer an opiate at night to allay irritability, and procure sleep. The local treatment

consists in the use of stimulant and detergent applications, poultices, attention to cleanliness, and change of position.

Let me, however, beg your attention for a few moments, while I dwell a little more at length on the subject of bed-sores, a very troublesome occurrence common to most cases of protracted illness, requiring the greatest attention and care on the part of the physician, and in the treatment of which much ignorance is too often displayed by young as well as old practitioners. If the duration of your patient's complaint renders him liable to such affections, how are you to act so as to obviate them? In the first place, you must pay particular attention to the state of his bed. One of the best modes I am acquainted with of preventing the formation of bed-sores is, to keep your patient perfectly clean, to shift him frequently, and to take particular care to prevent him from lying in the wet. A physician should never trust the arrangements connected with his patient's manner of lying to the discretion of nurses; he should always look to it himself. You are advised to make your patient change his posture to obviate the effects of pressure, and to use cushions of various kinds. All these rules are good. You are also told to wash the parts with camphorated spirits of wine when any discoloration appears. This, too, is useful. But, in spite of all this, after fever has continued for some time, and your patient has become debilitated, bed-sores will come on not only in consequence of the effects of pressure, but also from the tendency in the constitution to form those sores. You remember the case of a man who had a bed-sore under the skin of the sole of the foot, and another under that of the heel,—parts totally exempt from pressure.

When the first redness, indicating the approach of a bed-sore, has made its appearance, various other means are usually adopted. Some advise the application of pledgets of lint moistened with camphorated spirits, and they endeavour to keep these pledgets in contact with the part, by means of bandages or adhesive plaster. Others use dry lint, or hair-powder, and many are in the habit of immediately covering the affected portion of the skin with adhesive plaster alone. The latter application too often aggravates the mischief, by exciting a rash and itchiness in the surrounding integuments, which become an additional source of inconvenience, and often force the patient to scratch the irritated parts in such a manner as to disturb and remove all the dressings. You must recollect, too, gentlemen, that fever patients are always restless, and frequently delirious, and consequently they are constantly changing their position, and tossing about in the bed, so that it is quite impossible to make use of any contrivance capable of keeping these applications in their place. After they have been fixed on and adjusted with the greatest ease, if you return in a few hours you will find them, if not removed altogether from the part, so wrinkled and crumpled, as to form, by the inequality of their pressure, new sources of irritation. What, then, is to be done? What means do I recommend to enable us to avoid so serious an evil? A case of this kind cannot be too vigilantly watched, and it is only by the most anxious attention and care bestowed upon every thing connected with the cleanliness, dryness, and comfort of your patient, that you can avert the formation of bed-sores in protracted and putrescent fever.

In private practice, I never treat a fever of this nature without having a second bed in the patient's apartment. After the eleventh or twelfth day, the patient is removed from one bed to another every twenty-four hours; and when the disease is still further advanced, particularly if the patient wets the bed, the removal may take place every twelve hours. The moment he is

changed, all the foul sheets and blankets are removed from the apartment, and, if necessary, a fresh mattress is provided. Many will contend, that the same object will be gained by carefully shifting the patient from one part of the bed to another, and by a diligent attention to dryness, by means of a constant renewal of sheets and clothes placed under him. These expedients must be used in both cases, but without the change of bed all our efforts will be too frequently ineffectual. During the progress of long-continued fevers, the relatives and nurses of the sick are apt to become jaded and worn out, at the very time when the greatest vigilance and activity are necessary ; it is then that the physician ought to redouble his vigilance—he ought not to trust too implicitly to what is told him, but inquire into and examine everything himself.

It is scarcely necessary to observe, that the fresh bed must be well heated with a warming-pan, and that when the patient is weak, his removal must be effected with the greatest care, and he must be carried, as nearly as possible in an horizontal position, from one bed to the other. When these precautions are observed, it is wonderful what advantage is derived from this plan. Indeed, nothing can be more grateful than this removal from a tossed, foul, and wet bed, to one that is smooth, clean, and in every respect comfortable. How often have I seen this change immediately followed by a sound and refreshing sleep. To be successful practitioners, gentlemen, you must not be merely scientific physicians, but you must understand the more minute duties of the nurse.

If, notwithstanding these precautions, bed-sores should arise, or if you are called to a case where they have already commenced, there is considerable redness and heat of skin in the affected part ; it looks angry, and is slightly elevated and buffy in the centre ; nay, there may be even slight abrasion of the skin, leaving an unhealthy festering surface. What is to be done? Wash the parts well, three or four times a day, with a strong solution of nitrate of silver—ten or fifteen grains to the ounce of water; keep the part perfectly dry in the intervals between its application, and it is wonderful what a speedy amendment will take place. This plan of treatment I first saw successfully employed at the suggestion of Mr. Kirby, in a case of fever, where I thought it perfectly impossible to prevent the formation of extensive, and probably fatal sloughing. You cannot conceive how rapidly the swelling, heat, redness, and puffiness of the part subsided under the use of this remedy; to me it was perfectly novel; but when we reflect upon its utility in erysipelas, we are only surprised that it was not before suggested in the treatment of *incipient* bed-sores.

With respect to the present epidemic fever,* we have now seen so many instances of its direct communication from one point to another, in our wards, that we are induced to believe it to be contagious. From the great number of applicants labouring under serious and threatening diseases, we are sometimes obliged to put into our fever-wards patients affected with local inflammations, accompanied by symptomatic inflammatory fever; several of these, while recovering, have been attacked with symptoms of the present epidemic. A man was admitted last week into the fever ward with violent pneumonia; the right lung was extensively hepatised, and, in addition to this, the pleura was found to be engorged over a large portion of its surface. The case was one of extreme distress, and the state of the patient apparently hopeless;

* This observation applies to the epidemic of 1834.

however, by appropriate depletion, assisted by mercury and blisters, convalescence became established, and the pulmonary systems were rapidly subsiding. His system was still under the influence of mercury, his fever had disappeared, his dyspnoea was relieved, his cough and all the other symptoms nearly gone, when he was suddenly attacked with fever, and that of the same character as prevailed among the patients in the same ward. This is, I believe, the sixth or seventh case in which patients labouring under some other form of disease have been seized with symptoms of the present epidemic, while lying in the same ward with fever patients. I have thought it necessary to make this observation, because you will find it asserted in medical works, and by physicians of considerable eminence, that in hospitals fever does not spread from one patient to another, and that where it does appear among many individuals in the same house, its spread is chiefly favoured by want of cleanliness and proper ventilation. This, however, we can state to be the fact, that fever will spread among patients in the same ward, independent of anything connected with filth or foul air, for we have seen it occur in our wards, which I can assert are kept as clean, and as well ventilated, as any in the kingdom.

There is one circumstance connected with this case worthy of remark, with reference to the supposed anti-febrile properties of mercury. It has been stated, that mercury exercises a prophylactic influence over the system, and several persons who have cultivated medicine with success, but particularly some army surgeons of high authority, have asserted that the use of mercury not only cures fever, but also secures against it. I am afraid that in this and other cases, mercury has more credit than it deserves. I have seen persons under the influence of mercury take cholera and die of it; and here we find a man whose mouth is still sore, in whom salivation had not ceased, getting an attack of fever at a time when he had just recovered from another disease. This shows that mercury is not to be looked upon as a prophylactic in cases of fever of a contagious nature. We cannot always cure or prevent fever with mercury; on the contrary, where fever of a particular kind is present, it prevents the constitution from yielding to its influence. Thus, in a case of hectic fever, brought on by suppuration of the liver, it has been found impossible to bring the system under the influence of mercury.

There is a case in the female fever ward which requires a passing observation. A young woman, previously in the enjoyment of good health, was seized with symptoms of fever after exposure to cold; she got rigors, followed by headache, hot skin, thirst, nausea, and acceleration of pulse. It is unnecessary for me to detail the symptoms which attended her illness during the past week; I shall content myself with pointing out the symptoms which particularly attracted my attention to her case on Saturday morning. At that time her fever had increased; she complained of severe headache and restlessness; had foul tongue, thirst, and symptoms of gastro-intestinal irritation. Such matters demand no very particular consideration; what chiefly fixed my attention was the occurrence of slight and transient rigors during my examination: I observed her shuddering three or four times in the space of a few minutes. On questioning her respecting these brief rigors, she informed me that they had occurred with more or less frequency for the last three days. Now, whenever you meet with a symptom of this description in fever, be on your guard; watch the case with anxious, unremitting attention, and never omit making a careful examination. It is in this way that one of the worst complications of fever—treacherous and fatal disease of the brain—very often commences. On examining this girl, we found that she had not

only headache, but also acute pain referred to the left ear, the external meatus of which was observed to be hot and tender to the touch. In addition to this, we were informed by the nurse that she had been seized with a sudden fit of vomiting shortly after we left the ward on the day before. Here was an array of threatening symptoms calculated to awaken attention in any, even the most heedless observer. A patient, after exposure to cold, is attacked with symptoms of fever; she has headache and restlessness; she then begins to complain of acute pain in the ear, darting inwardly towards the brain; and, finally, is seized with sudden vomiting. Under these circumstances, it is not difficult to form a diagnosis, and there can be little doubt but that the phenomena here presented were indicative of incipient inflammation of the membranes of the brain. It is not easy to say whether in such cases the inflammatory affection of the membranes precedes the external otitis, or whether the inflammation commences in the external ear and spreads inwards, though I am inclined to adopt the latter supposition, and the circumstance of the fever and earache arising from cold seems to give an additional degree of probability to this view of the question. Be this as it may, there could be no doubt but that this girl was, on Saturday, labouring under incipient inflammation of the membranes of the brain, as denoted by headache, rigors, acute pain in the ear, and vomiting.

Here let me observe, gentlemen, that in cases of this description, I look on the occurrence of external tenderness, not merely as an indication of an internal disease, but also as a favourable symptom. I have remarked that in all cases where this happens, the physician becomes more speedily and sensibly aware of the existence of internal disease, and the remedial means employed act with a more decidedly beneficial effect. I would prefer having to deal with an inflammatory affection of the brain or bowels, accompanied by external tenderness, and would feel much more certain as to the result, than if this symptom were but faintly marked, or totally absent. This observation is founded on experience.

In treating this case, you have seen that I have ordered relays of leeches to be applied in the vicinity of the affected ear until the earache has ceased. I have long followed this practice of applying a number of leeches in succession for the relief of local inflammation, and I can state with confidence that the result has been, in the majority of cases, highly satisfactory. Some prefer the application of a great many leeches at once; but my experience speaks strongly in favour of the practice of applying a small number, repeated at short intervals, until the violence of the local inflammation is subdued. Relays of six or eight leeches will suffice in the majority of cases of pectoral, cerebral, or abdominal inflammation. In some, however, when the attack is violent, fifteen or twenty must be applied at once; each succeeding relay may consist of a smaller number than that which preceded it. In this manner I have maintained a constant oozing of blood from the integuments over an inflamed organ, for twenty-four, or even thirty-six hours. In addition to this, I determined to bring her system rapidly under the influence of mercury, and, with this intent, administered calomel to the amount of a scruple in the twenty-four hours. These means have acted favourably, and she feels much better to-day.

Allow me to make one observation more which this case suggests. This young woman, you recollect, had, on her admission, some epigastric tenderness, which we removed by leeching, and she remained free from any symptoms of gastric irritation until last Saturday, when she got a sudden attack of

vomiting. Now, *in all feverish complaints, where, during the course of the disease, the stomach becomes irritable without any obvious cause, and where vomiting occurs without any epigastric tenderness*, you may expect congestion, or incipient inflammation of the brain or its membranes. If called to a case of scarlatina, where there is severe vomiting, and perhaps diarrhœa, unaccompanied by thirst or epigastric tenderness, what should your practice be? Are you to direct your attention to the alimentary canal, and endeavour to arrest these symptoms? No. The vomiting here depends on active congestion of the head, and such cases are very apt to end in coma, convulsions, or death, from disease of the brain. You are all aware, that in cases of injuries of the head, followed by congestion of the brain, vomiting is one of the most prominent symptoms. The same thing occurs in febrile affections, attended with determination to the head. You are not to conclude that a fever is gastric, because it commences with nausea and vomiting; this is a serious, and very often a fatal mistake; yet I am sorry to say it has been committed by many practitioners, and I have been guilty of it myself. In such cases, you should not waste time in attempting to relieve gastric irritation by cold drinks, and leeches to the epigastrium, or to check diarrhœa by chalk mixture and opiates; you should direct your attention at once to the seat and origin of the mischief, and employ prompt and effectual means to relieve the cerebral congestion. Where the disease sets in with severe vomiting, unaccompanied by distinct evidences of gastric inflammation, whether it be common fever, or scarlatina, or measles, or small-pox, I commence the treatment by applying leeches to the head, convinced that in this way I shall be most likely to prevent an approaching dangerous congestion of the brain. I am anxious to impress this observation on your minds, because I am fully sensible of its importance, and feel certain that you will derive much advantage from bearing it in recollection during the course of your future practice.

There is another subject which I wish to bring before you to-day, namely, the seat of the swellings which, in the latter stages of fever, are usually attributed to inflammation of the parotid and sub-maxillary glands. Every writer on the subject of fever has noticed the occurrence, in the last stage of that disease, of tumours, which not unfrequently suppurate, and which all considered as the consequence of inflammation in the glandular system; the parotid and sub-maxillary glands being the parts most frequently engaged. Four such cases have lately presented themselves to our observation—two with a favourable, two with a fatal result. The latter afforded us an opportunity of examining the nature and seat of this affection, with a view of determining the correctness of the opinion generally entertained concerning these points.

According to the best authors, the parotid and sub-maxillary glands, towards the termination of fever, are liable to become painful, tender, and very considerably enlarged; and the tumor so formed is either a fatal symptom, or else, becoming the seat of a benign suppuration, proves salutary, or even critical. When of the former unfavourable character, they are said sometimes to attain to a considerable size in a very short space of time, and also to be liable to a disappearance equally rapid.

In our first case, the sudden appearance of the tumor was very remarkable, for, in the course of a few hours, two swellings had been formed, in their situation and general appearance resembling mumps of the largest size. They were so extremely tender that the patient screamed on their being touched even in the gentlest manner, yet they were unattended with any cutaneous redness. Without producing any alleviation of the cerebral affection that

constituted the predominant symptom of this poor man's fever, these swellings somewhat subsided before his death, which happened on the following day. Much curiosity was excited among the pupils, with regard to the nature of this local affection, and by many it was considered as arising from a sudden inflammation and tumefaction of both parotids—so exactly did the tumors, in extent and situation, resemble the mumps. Their hardness, it is true, was not so great as that usually observed in the latter disease, but this circumstance alone could not be relied on as a distinction. On examination, the parotids were found raised up by the tumors, but were not enlarged or otherwise altered in structure, except that their interstitial areolar tissue was, as it were, bathed in a reddish serous fluid, evidently the result of a violent inflammation of a peculiar character and short duration. The swellings were owing to the effusion of a similar fluid, which abounded most in the subcutaneous areolar membrane, while, in that which pervades the substance of the muscles, not only in the superficial, but in that more deeply seated, it was observed in lesser quantity. The intermuscular spaces were also occupied by this fluid in considerable abundance.

It may, perhaps, be said that these swellings were essentially different in their nature from the suppurating tumors observed in fever; but their identity is proved by the case of a young man named Connor, in whom swellings, in all respects precisely similar, arose six days previously to his death. The longer duration of the inflammatory process, of course, produced an alteration of structure somewhat different, but still evidently only an advanced stage of that just described, while it was also as evidently of the class of suppurating tumors. It is worthy of remark that, in Connor's case, the tumor on the right side, on the fourth day of its appearance, occupied exactly the same situation that is observed in the mumps, and had likewise the same degree of hardness; while that on the left side, which was only of two days standing at that period, was situated lower down, and was much less firm. These swellings subsided a good deal a few hours before his death. The areolar tissue, in the parts before enumerated, was not infiltrated merely with bloody serum, as in the other tumors, but this serum was everywhere mixed with pus, and the areolar tissue itself had become dense and friable, and was of a reddish, or rather a flesh colour. The parotid and sub-maxillary glands shared in this affection of the areolar tissue, and consequently contributed their proportion to the formation of the tumors; but they by no means constituted the whole of the swellings, or indeed any thing like the greater portion of them.

A few days after Connor had been attacked, a similar swelling arose in a boy, named Byrne, who lay in the bed next to Connor; but it was confined to one side, and it occupied a position corresponding to the parotid, where it was most swollen: but in its less tumefied parts it extended both further downwards and backwards. This tumor suppurated, and formed an abscess, which was apparently much more superficial than the great mass of the swelling, and unconnected with it; for when it was opened, and its contents were discharged, the hardness and swelling in the region of the parotid seemed undiminished. The abscess, however, continuing to discharge matter, this swelling gradually declined, and finally disappeared.

At this very time a woman in the fever wards was attacked with a similar swelling, but which was evidently neither in the situation of the parotid or submaxillary gland: it was confined to the subcutaneous tissue immediately below the ear, and was prevented from suppurating by the application of leeches.

The facts just stated are, I think, gentlemen, conclusive in proving that the tumors hitherto supposed to arise from inflammation of the parotid or submaxillary gland, and which in fever sometimes forbode death, and are sometimes the precursors of returning health, are not owing to an affection confined in its action to these glands ; but, on the contrary, the inflammation and its consequent tumefaction are seated in the areolar membrane of all the neighbouring parts : so that the bulk of the tumor is sometimes altogether, and generally for the greatest part, made up independently of disease of these glands. It would be rash to extend this conclusion to the mumps—cynanche parotidea, but I may be permitted to remark that I am far from being satisfied that the seat of the tumors, so called, has not been assumed without sufficient grounds. Indeed this disease so rarely, if ever, proves fatal while the swellings persist, that I do not know of any post-mortem examination of the tumors of mumps on record. Our only guide, therefore, is analogy ; and when we recollect that our swellings agree with mumps, not only in general appearance and situation, but also in the sudden manner in which they arise, and, according to the testimony of authors, in the sudden manner in which they occasionally disappear ; when we recollect, also, that like mumps, they show a decided tendency to be epidemic ; we cannot avoid conceding that the points of resemblance are strong ; the more so that in both diseases the sudden disappearance of the tumor is always dangerous. The sympathetic inflammation of the mammæ in females, and of the testes in males, which not very unfrequently follows retrocession of the tumors in cynanche parotidea, may be objected to this analogy, and may be considered as proving the glandular nature of the swelling in mumps. On the other hand, we know of no other glands which are liable to become, in consequence of inflammation, so enormously enlarged in the course of a few hours, as the parotids in mumps, (if that disease really depends on an affection of these glands alone) ; and, indeed, it may be observed that acute inflammation seems, in all other glands, incapable of causing a degree of swelling at all comparable to that observed in mumps. The swelling, too, in other glands is better defined and more circumscribed, and scarcely liable to the sudden retrocession observed so frequently in cynanche parotidea. It is a singular fact that the salivary secretion is not notably altered in mumps, and yet were this disease dependent on inflammation of the parotids, a suppression, or at least some alteration, in the quantity or quality of that secretion might be expected. Such, gentlemen, are the ideas which have at the moment occurred to me concerning the pathology of these affections—ideas which I have ventured to bring forward merely with a view of exciting further inquiry on the subject.

LECTURE XVI.

TARTAR EMETIC AND OPIUM IN FEVER ATTENDED WITH CEREBRAL
EXCITEMENT.

I have several times alluded to the use of tartar emetic in the treatment of the cerebral excitement and determination to the head, which are so frequently witnessed in the advanced stage of typhus fever; I shall now proceed to mention in detail some of the beneficial effects derived from this plan of treatment, as illustrated by cases which have recently occurred in my own practice, or in that of other members of the profession.

Did I bring forward this plan of treatment as infallible, or if I boasted that it never failed, then, indeed, you might well doubt my judgment in recommending it to your notice, for infallible remedies never earn the sanction of experience; but such is not the fact. This treatment we ourselves have seen will not always succeed; nay, we must acknowledge that it has occasionally disappointed us, even where we seemed justified in calculating upon success. But, gentlemen, we must recollect that every useful remedy is subject to the same charge, and that in the long list of therapeutic agents, there does not exist a single medicine which is fairly entitled to the appellation of a true and infallible specific.

We have failed in several cases with tartar emetic, either alone or combined with opium and other medicines, and patients labouring under typhus have fallen victims to cerebral disease, although we applied the remedy with all due diligence. Yet I think it but fair to observe, that most of the instances in which we failed were cases that had come under our notice at an advanced stage of fever, and where the cerebral symptoms had been wholly overlooked or improperly treated in the commencement of the disease. I may observe also, that cases of this description, in which the cerebral symptoms have been permitted, before admission into hospital, to form themselves fully, are exceedingly difficult to manage, and terminate fatally at a much earlier period than the ordinary cases of typhus observed in private practice.

Maculated typhus with determination to the head, when improperly treated, terminates not unfrequently about the tenth, eleventh, or twelfth day; sometimes it is protracted to the thirteenth or fourteenth, but most usually it ends fatally about the eleventh or twelfth. In neglected cases, the cerebral symptoms frequently assume a fearful violence on the seventh, eighth, or ninth day, and in such instances it must be expected that the best and most appropriate plan of treatment will fail in rescuing the patient from impending dissolution. If, however, we can find out a remedy which, in many cases apparently desperate, succeeds in rescuing the patient from the jaws of death, we must be satisfied. A case of this description has occurred since our last meeting. It has excited the attention of all who witnessed it, as well from the violence of the symptoms, and the apparently hopeless state of the patient, as from the rapidity with which the exhibition

of the remedies employed was followed by a striking and decided alteration in the symptoms. Any one who saw him yesterday would scarcely recognise him as the same individual to-day.

This man, named Fogarty, was admitted about the seventh or eighth day of his fever, according to the account of his friends. Of course in such cases we cannot give implicit credence to those loose statements, for the lower class of persons in this country never calculate the time during which the patient remains out of bed struggling against the disease, a period which, in a people inured to suffering and privation, frequently lasts three, four, or even six days. Well, this man, aged five-and-twenty, and of rather robust constitution, was admitted on the 20th of December, being then about eight or nine days ill. Previously to admission he had taken purgative medicines, had his head shaved, and six leeches applied behind his ears or to his temples, I forget which. Now all these measures, although perhaps insufficient, were extremely proper, and must have produced more or less benefit. When we examined him on the 21st, we found him in a state of high excitement, as manifested by continued mental wandering, incessant talking and raving, and frequent attempts to get out of bed. He had illusions of the senses of sight and hearing, consisting of terrific ocular spectra, and alarming sounds, which threw him into a state of intense agitation;* his eye was red and watchful, and he never slept. Here, then, was a very threatening array of symptoms—perfect insomnia, ocular spectra, illusions of the sense of hearing, a fiery eye, and incessant mental wandering. To this was added great derangement of the whole nervous system. His body was agitated from head to foot by continual tremors, and he had violent and persistent subsultus; his respiration was interrupted, suspirious, and irregular, amounting at one time to forty in the minute, afterwards not exceeding twenty-five; the acts of inspiration and expiration were extremely unequal, and occasionally accompanied by blowing and whistling. In a former lecture I made some observations on this form of respiration, which I termed *cerebral*, from having first observed it in persons subject to apoplectic attacks, either before or during the paroxysms. It is frequently observed in bad cases of fever, and is a symptom of the greatest importance. He also lay constantly on his back; his pulse 120, soft, and very weak, so that the canal of the artery could be obliterated by very slight pressure; his pupils were somewhat dilated; tongue parched, and brown in the centre, red at the edges and tip; skin covered with maculæ; abdomen soft and full.

Those who have witnessed the case will acknowledge that the picture I have drawn is not too highly coloured, but, on the contrary, falls far short of the reality, and no doubt you all expected that if we did not succeed at once in arresting the progress of his symptoms, the case must have proved rapidly fatal. Observe the position in which we were placed. In the commencement of the fever, certain appropriate but inadequate remedies had been employed, and, under a treatment proper but insufficient, the disease had progressed. It was an example of one of the worst forms of fever, characterised by intense cerebral excitement, and accompanied by total want of sleep, persistent delirium, and excessive disturbance of the nervous functions. All these symp-

* In my last lecture I mentioned that analogous symptoms result from increased or diminished sanguineous pressure on the brain; the ocular spectra in Fogarty's case evidently depended on determination of blood to the head, but in the case of a lady, the wife of an eminent physician, a continued and varied succession of spectral illusions formed one of the chief symptoms, produced by exhausting hemorrhage after delivery.

toms had come on gradually, and arrived at their acme at a period when the low and debilitated state of the patient precluded the use of depletive measures to such an extent as to exert any efficient control over the most dangerous symptoms. The application of a few leeches would be extremely hazardous, and blistering would have been wholly useless and nugatory, for before the blister could rise the man would be dead.

For these reasons, we concluded that the only remedy we could have recourse to with any prospect of success was tartar emetic. We therefore ordered a draught composed of two drachms of mint water, two of common water, and a quarter of a grain of tartar emetic, to be given every hour, until it produced some decided effect on the constitution. You will recollect here that the scale was vibrating between life and death, that it was necessary that our plan of operation should be at once prompt and prudent, decisive and cautious. One of the pupils promised to stay by him the whole day, and watch the effects of the remedy, and I determined to visit and examine him personally in the afternoon.

In the course of four hours he took four doses of the tartar emetic; the first and second, in fact almost every dose vomited him, but not immediately. He retained each dose for a considerable time, and then threw it up. After the fourth dose, it began to act on his bowels, and then the medicine was suspended for some time, and a small quantity of porter administered. When I saw him at eight o'clock in the evening, he had been freely purged, and had discharged a considerable quantity of bilious yellow fluid from his bowels. He had also enjoyed about an hour's sleep; his respiration was now more uniform and natural; his raving greatly diminished; the subsultus and tremors were nearly gone, and the man appeared quite tranquil. I then ordered him a wineglassful of porter, with two drops of black drop, to be repeated every second hour for three or four turns successively. I saw that the cerebral symptoms were evidently diminished, and that there was a tendency to returning tranquillity and repose, and I wished to follow up and assist the operations of nature. To-day this man is in a most favourable state. His skin is covered with a most profuse warm perspiration; he has slept well; belly soft and natural, respiration slow and regular, and pulse diminished in frequency. He is calm, rational, and composed, and I think I am not too sanguine in anticipating for him a speedy and certain recovery.*

It is always an unpleasing and ungracious task for any individual to be obliged to come forward with proofs of the originality of his contributions to science. This task some have endeavoured to impose on me, and have sought to impugn both the originality and utility of my method of using tartar emetic and opium in typhus fever. Their arguments do not require any answer, and may be passed over in silence without any loss to you or prejudice to me, for certainly you could derive little profit from hearing the statements of my opponents, and I but slight credit from their refutation. Suffice it, then, to say that the prescriptions filed by the apothecaries of Dublin establish my claims, for you will search in vain among them for one bearing a date prior to the publication of my papers on the use of tartar emetic and opium *in the advanced stages of fever*, and in which these medicines are prescribed in the way, or anything like the way, recommended and practised by me. Since that date, such prescriptions have daily become more numerous, and I am proud to bear testimony to the general liberality of the profession, for the

* He recovered rapidly and completely.

greater number of my brethren have not merely tried my plan of treatment, but have acknowledged its utility, and have hastened to assure me that, until my publications, they had not seen it practised. But enough of this, let us not employ in general encomiums that time which may be more profitably dedicated to instructive details; let us therefore again recur to facts.

I have received from Mr. Burke and Dr. Beauchamp the notes of an extremely interesting case of this description. The case is extremely valuable as having been observed by Mr. Burke from the commencement; I shall read the whole of it from his letter, as it is well worthy of attention.

"I was called on the 25th of November to see Mrs. M., a married woman, without family, of a weakly and nervous habit, though generally enjoying good health. She complained of having had chilliness on the preceding day, and now that she was hot, thirsty, had pain in the head and back, and great debility. On examination I found that petechiæ covered the chest and abdomen; the eyes suffused; face red; scalp hot; pulse 110, small and hard; tongue covered with a creamy exudation; no abdominal or chest affection; secretions and excretions arrested. She was ordered some aperient medicine, and directed to be kept very quiet.

"26th.—Passed rather an uneasy night, frequent startings; some raving; complains of headache, and that the light and noise are distressing; pulse as before, face more flushed, bowels open. I directed a cooling lotion for the head, and a diaphoretic mixture containing liquor acetatis ammoniæ, and nitre. On the 27th, she complained of the headache being made worse by the noise in the house, from which I determined to have her removed, and I therefore did not put any active treatment into requisition.

"30th.—This day she was removed to a quiet airy room. I then had her head shaved, eight leeches applied behind the ears, and a blister to the nape of the neck; bowels opened by enemata.

"Up to the 5th of December, which was the tenth day of her illness, she went on tolerably well, occasionally raving at night; tongue dry and red; pulse very weak, 110; eyes much suffused; face occasionally flushed, then pale; scalp hot. At this period Dr. Beauchamp saw her, and from the weakly habit of the patient, and the peculiar tremulous feel of the pulse, he thought it advisable to let her have some weak chicken broth and light negus; the latter had soon to be discontinued on account of the excitement it produced.

"On the 14th day she became more delirious and somewhat unmanageable, though previously very gentle; however, when spoken to she answered tolerably reasonably. Ordered to continue the lotion, enemata, and saline draughts.

"Dr. Beauchamp and I saw her next day about ten o'clock in the forenoon, being the fifteenth day of her fever. Previous to our going into the room, the nurse gave us a frightful picture of the way she spent the night. She had been perfectly unmanageable, continually screaming, and imagining she saw frightful apparitions, and had been convulsed during the night. On entering the room, we found her with her hands outstretched and rigid; a mixture of wildness and terror in her face, her eyes red and protruded, pupils contracted, pulse not to be counted, and scarcely to be felt; feet cold and stiff. When spoken to she made no answer, but kept her eyes steadily directed towards the foot of the bed. Her aspect was altogether frightful, and Dr. Beauchamp observed that her state appeared to be a combination of delirium with hysteria.

"The question now was, what were we to do? We dared not apply leeches, blisters would be doubtful, and the probability was that the patient would sink before they vesicated. There was no indication for cold to the head, for the scalp was cool. Could we rely with safety on nervous medicines? Their very stimulus might hasten her to the tomb. The indication was to relieve the brain; and the question was, what medicine or combination of medicines would effect this with safety? Under these circumstances, we happily thought of the treatment employed by you in somewhat similar cases. We immediately ordered a mixture containing three grains of tartar emetic, half a drachm of laudanum, and six ounces of water; of this a tablespoonful was administered every half hour, its effects being watched. We saw her again at one o'clock on the same day, and had the pleasure of finding her much improved. She had taken three doses, and vomited twice. The expression of her countenance was much changed, it had lost its ferocity and wildness; her tongue was now moist, perspiration was beginning to appear over her body, the pulse was soft and about 100, and the intelligence, which had been absent for a considerable period, now reappeared. She was able to answer our questions, and expressed herself relieved. We ordered the medicine to be continued, giving a tablespoonful every hour. After taking two doses, she became perfectly quiet, fell into a profound and tranquil sleep, perspired copiously, and at our visit next morning at ten o'clock, we found her, to our astonishment, almost well. She looked cheerful and refreshed, and spoke of the wonderful relief she obtained; her pulse was soft, and about 80; her skin natural, and her tongue moist and clean. Dr. Beauchamp did not think it necessary to continue his visits, and all that remained for me was to conduct her by proper regimen from convalescence to perfect health. She is now quite well.

"It is a source of gratification to me to have had the able assistance of Dr. Beauchamp on this occasion, and his presence during the eventful period adds much value to the case. Dr. Beauchamp remarked, at the time when hope had fled, that he knew of no routine of practice which afforded a probability of being of service, so that we may fairly conclude, that but for your happy combination the patient must have died."

This is a very strong case; indeed there could scarcely be a more striking illustration of the value of tartar emetic and opium in the treatment of the cerebral symptoms of fever. The case, too, was one of great danger; the patient was of a nervous weakly habit, and during the acme of the disease she had an attack of convulsions. This is a very important and most formidable symptom in fever, particularly when superadded to others indicating a deranged state of the sensorium. We had a patient here, some time back, who had two convulsive paroxysms during the course of his fever, and you recollect that I told you that it was a symptom of unusual danger. Some time ago a gentleman, in discussing my cases, said that convulsions in fever were not so dangerous, but I had the satisfaction of quoting for him the authority of Hippocrates, to show that persons who had been attacked in this way very seldom recovered.

I shall next detail a very remarkable case, which was communicated to me by Mr. Swift:—

"J. Kinsela, a labourer, aged 23, of powerful make, and robust constitution, was attacked with fever about the 14th or 15th of January. He complained during the ensuing week of intense headache, thirst, and debility, but had no medical treatment. On Saturday, the 21st, he was extremely ill

and restless, and on Sunday morning, while his clergyman and several of his friends were with him, he got out of bed in a state of furious delirium, seized a knife, and having cleared the room, rushed out into the street in his shirt, where he was secured by a policeman and some of his neighbours, and brought back to bed, having previously wounded several of his captors in the struggle. He then fell into a state of coma, and when I saw him on the following Thursday, the 26th, he exhibited the following symptoms:—Decubitus on the back; eyes nearly closed; lips red, dry, and chapped; forearms bent and agitated by apparently unconscious movements; convulsive twitches of the eyebrows and angles of the mouth; breathing irregular, heavy, and somewhat stertorous, (of that description which you have aptly termed *cerebral*); pulse oppressed, unequal, weak, and about 110; great heat of scalp and face; temperature of the body normal; feet very cold. He had no pulmonary symptoms; his belly was soft and apparently natural, but he gave indications of uneasiness when firm pressure was made over the situation of the stomach and small intestine. He was raised up in bed, shaken roughly, and spoken to repeatedly, but gave no answer; nor would he put out his tongue, or open his eyes when requested. His tongue, as far as I could see it, appeared red, dry, crusted, and fissured; and on raising his eyelids, I found the eyes greatly suffused, and the pupils contracted nearly to the size of a pin's head.

"His face, hands, and head, were bathed with warm vinegar and water, jars filled with hot water applied to his feet, and about two o'clock, p.m., he commenced taking tartar emetic in doses of a quarter of a grain every hour. It was combined with a small quantity of opium.

"When I saw him again, about nine o'clock in the evening, he was wonderfully improved. He could be easily roused, answered questions distinctly, put out his tongue when desired, and appeared quite rational. He had taken about two grains of the tartar emetic, the effects of which appeared to be chiefly confined to the circulating system. His pulse was now equal and regular, the temperature of his body nearly uniform, and a slight degree of moisture could be felt on his skin, but he was neither vomited nor purged. A mixture, containing nitrate of potash and tincture of hyoseyamus, was substituted for the tartar emetic; the fomentations of warm water and vinegar were continued, and he had a purgative enema with turpentine, which was followed by a full discharge from the bowels and copious diuresis. On Saturday, the 28th, he had an indistinct but favourable crisis; his tongue became clean and soft, and his pulse diminished in frequency. On the following Tuesday, his pulse was 76, his tongue clean, eyes clear, pupils natural, appetite returning, so that I considered it unnecessary to continue my visits beyond the following day. His convalescence is now completely established.

"I have been particular in describing the cerebral symptoms in this case, as the patient's head was neither shaved, blistered, nor leeches. A portion of his hair was cut off with a scissors, and this was all that was done in addition to what I have mentioned. I attribute his recovery to the tartar emetic and opium, as under its use he recovered in a few hours from a state of stupor and coma, which otherwise must have speedily terminated in death, and I think this valuable remedy has additional claims to notice, if (as it would appear from Kinsela's case) it can be employed as a substitute for all the ordinary and expensive remedies used on such occasions,—remedies which, in dispensary practice, and among a pauper population like ours, it is often difficult, and sometimes impossible to procure."

It is well known that delirium tremens requires very different modes of treatment, varying according to the constitution, strength, age, and habits of the patient. In the young and robust, more especially when it is produced directly by excessive drinking, it often assumes a form exceedingly resembling that of delirium arising from sudden congestion or inflammation of the brain or its membranes, and then demands strictly antiphlogistic measures, such as venesection, leeching, cold to the head, and very active cathartics. These remedies will often speedily arrest the progress of the disease. On the other hand, we most frequently meet with delirium tremens calling for a totally opposite plan; for when it occurs in the old, debilitated, and confirmed drunkard, who has been repeatedly subject to its attacks, we are obliged to exhibit opium from the very commencement, and that in large doses, combined with porter, punch, or some other cordial. These two form the extremes, between which there are many intermediate varieties, each requiring a special modification of practice.

Thus, some must be treated rather actively, on the antiphlogistic plan at first, and immediately afterwards opiates may be used with advantage; while in others, opiates cannot be given alone at any period of the disease, so prominently marked are the symptoms of cerebral congestion; and yet these cases cannot be cured without narcotics. How then are they to be exhibited? Do we possess any medicine capable of modifying and diminishing their injurious effects when given where cerebral congestion exists? Undoubtedly we do; tartar emetic will often accomplish this desirable object, and in delirium tremens the value of its combination with opium is recognized by every practitioner of experience. Tartar emetic, boldly exhibited, is often our sheet anchor in delirium tremens, especially when the evidence of active determination to the head is undoubted. Then tartar emetic alone, in repeated doses, often powerfully contributes to produce tranquillity and sleep; but there are other more mixed cases, where we cannot cure without adding opium, sometimes in larger, sometimes in smaller quantities, to the solution of tartar emetic; and so it is with the delirium and sleeplessness, so often met with in fever.

Every one is acquainted with the indications denoting the propriety of adopting the antiphlogistic practice when these symptoms make their appearance in the commencement of fever. Then the lancet, leeches, purgatives, cold applications to the head, and finally, repeated doses of tartar emetic, tend powerfully to reduce vascular action, and diminish the violence of symptoms depending on cerebral congestion and excitement. Here the lancet and tartar emetic are our best opiates, our best restoratives of tranquillity and sleep. As the fever progresses, and when we have arrived at a more advanced stage of the disease, when maculae make their appearance on the skin, and symptoms of general debility, announcing the typhoid type, begin to predominate, then we must proceed with more caution, even though our patient is totally deprived of sleep and is violently delirious. The lancet cannot now be resorted to; leeches, indeed, may be applied, but their effects must be carefully watched, as the patient will not bear copious depletion of any sort; tartar emetic may, nevertheless, be still given boldly, and will be found to answer our expectations.

But, if we have to contend with want of sleep and delirium at a still more advanced period of fever, we now often recognize that very combination of symptoms—the union of general debility and cerebral congestion, which in certain varieties of delirium tremens we have seen so successfully treated with

be speedily followed by relief. I was convinced that they had taken a wrong view of the case, and stated as my opinion that nothing was to be expected from the perspirations; that when co-existing with a persistent febrile condition of the system, when accompanied by quick pulse, headache, and restlessness, perspirations always indicated the necessity of antiphlogistic measures, and in particular for the use of the lancet. I instanced the case of patients labouring under arthritis with profuse perspirations, which gave no relief, and said that it was well known that such cases were most successfully treated by a full bleeding from the arm. I accordingly stated that although the disease was of five or six day's standing, and the pulse not very strong, I would advise immediate bleeding. Sixteen ounces of blood were therefore abstracted, with some relief to the patient, and without increasing his debility; and it was then a question what further steps were to be taken.

The young gentleman had been actively purged; he had no cough or abdominal tenderness; his symptoms were headache, sweating, and sleeplessness; and to these nervous agitation had now become superadded. I proposed here what surprised my colleagues very much, and this was, to give our patient large doses of tartar emetic. They said the practice was very strange, but on my laying before them the reasons which induced me to prescribe it, consented to give it a trial. I said that in such cases the tartar emetic, forming as it were a part of the antiphlogistic treatment which commenced with general bleeding, would have a tendency to cut short instead of increasing the perspiration, by reducing the inflammatory state of the system on which it depended. The reasoning seemed rather paradoxical—nevertheless it turned out to be correct. I ordered the tartar emetic to be taken in the quantity and mode in which it is generally prescribed in acute pneumonia; that is to say, six grains of tartar emetic combined with a little mucilage and cinnamon water, in an eight ounce mixture, to be taken in the course of twenty-four hours. After taking five or six grains, the sweating began to diminish; on the second day he scarcely perspired any, and his headache was greatly relieved; he began to improve rapidly in every respect, sleep returned, nervous agitation ceased, and convalescence became soon established.

The next case in which I employed tartar emetic with signal benefit was one of a very insidious character, as many of them are at present; they exhibit no prominent or alarming symptoms, and yet continue to run on day after day without any tendency to crisis. The gentleman who was the subject of this case got an attack of fever, unaccompanied by any remarkable peculiarity, except that he was very nervous, and alarmed about his situation. His fever went on day after day without any decided symptom; he had no distressing headache, no cough, little or no abdominal tenderness; there was no vomiting nor diarrhoea; and his pulse was not much above the natural standard. He had been leeches over the stomach at the suggestion of some medical friends, but this was done rather by the way of precaution, than for the purpose of combating any actual disease. About the eighth or ninth day the pulse began to rise; he complained of headache, and became restless and watchful. On the eleventh day the headache had greatly increased, he was in a state of great nervous excitement, and had not closed an eye for the two preceding days and nights. This state of insomnia and nervous agitation was immediately followed by violent paroxysms of delirium; his eyes never closed in sleep—wandered from object to object with unmeaning restlessness; his limbs were in a state of constant jactitation, and he raved incessantly; his

voice being occasionally loud and menacing, at other times low and muttering. His friends became exceedingly alarmed, and every remedy which art could suggest was tried :—his head was shaved and leeches until they could leech no longer ; cold lotions were kept constantly applied with unremitting diligence, and he was purged freely and repeatedly.

At this period, that is to say, about the eleventh day of the fever, I was requested by this gentleman's medical friends to visit him. On examining the patient, I found that he was constantly making violent efforts to rise from his bed, and that he had a great deal of the expression of countenance which belongs to a maniacal patient. Under these circumstances, I advised the use of large doses of tartar emetic, in the mode already detailed, except that, in this case, in consequence of the violence of the delirium, I ordered the quantity prescribed for a dose to be taken every hour, instead of every second hour. The patient took about ten or twelve grains during the course of the night, and next day his delirium had almost completely subsided. Under the use of the remedy he became quite calm, fell into a sound sleep, and began to recover rapidly.

In the two preceding cases I was guided by ordinary principles, recognised by all physicians, and according to which the exhibition of tartar emetic is recommended in fever, wherever there is undoubted evidence of determination of blood to the head, producing headache, loss of sleep, and delirium. In the cases which follow, tartar emetic was exhibited at a period of fever, and under circumstances that were, with respect to the exhibition of this remedy, not less novel than important. The principles which led me to this practice have long been established, but, nevertheless, the practice is entirely new, and (I say it with pride, for it already has been the means of saving many valuable lives) it is entirely my own.

Shortly after the commencement of our present session, Mr. Cookson, a pupil at this hospital, and remarkable for his diligent attention to clinical pursuits, caught fever while attending our wards, in which many cases of the present epidemic were then under treatment. His fever was of an insidious nature, not characterised by any prominent symptom, not exhibiting any local disease to combat, or any tendency to crisis. For the first seven or eight days, with the exception of headache, which was much relieved by leeching, he seemed to be going on very well ; his skin was not remarkably hot ; he had no great thirst, nausea, or abdominal tenderness ; his pulse was only 85 ; and he had sweating, which was followed by some relief. About the eighth or ninth day the pulse rose, and he began to exhibit symptoms of a hysteric character. Now, in every case of fever, where symptoms resembling those of hysteria come on, you should be apprehensive of danger. I do not recollect having ever met with a single case of this kind, which did not terminate in nervous symptoms of the most formidable nature.

I prescribed at the time the usual anti-hysteric medicines, but without any hope of doing good, knowing that these symptoms were only precursory to something worse. I also, as a precautionary measure, had leeches applied to his head. The fever went on, the headache became more intense ; he grew nervous and sleepless, and fell into a state of great debility. On the fourteenth day of fever his tongue was black and parched, his belly tympanitic ; he was passing everything under him unconsciously ; he had been raving for the last four days, constantly attempting to get out of bed, and had not slept a single hour for five days and nights.

Dr. Stokes, with his usual kindness, gave me the benefit of his advice and

assistance at this stage of Mr. Cookson's illness, and we tried every remedy which experience could suggest. Blisters were applied to the nape of the neck, the head was kept cool by refrigerant lotions, the state of the belly attended to, and, as we perceived that the absence of sleep was a most prominent and distressing symptom, we were induced to venture on the cautious use of opium. It was first given in the form of Dover's powder, with hydragrym cum cretâ, with the view of relieving the abdominal symptoms as well as procuring sleep. This failing in producing the desired effect, we gave opium in the form of enema, knowing its great power in the delirium which follows wounds and other injuries. This was equally unsuccessful with the former. He still was perfectly sleepless. We came again in the evening, and, as a last resource, prescribed a full dose of black drop, and left him with the conviction that if this failed he had no chance of life.

On visiting him next morning at an early hour, we were highly mortified to find that our prescription had been completely unsuccessful; he had been more restless and delirious than ever. Here was the state in which we found him on entering his chamber at eight o'clock in the morning of the fifteenth day of his fever. He had universal tremors and subsultus tendinum, his eye was suffused and restless, he had been lying for some days entirely on his back, his tongue was dry and black, his belly tympanitic, his pulse 140, quick and thready, his delirium was chiefly exhibited in short broken sentences, and in a subdued tone of voice; and it was now eight days and nights since he had slept. Here arose a question of great practical importance. How was the nervous agitation to be calmed and sleep procured? Blisters to the nape of the neck, cold applications, and purgatives had failed; opium in various forms had been tried without the slightest benefit; if sleep were not speedily obtained he was lost.

At this emergency a mode of giving opium occurred to me which I had never thought of before. Recollect what his symptoms were at this period, quick, failing pulse, black, dry, tremulous tongue, great tympanitis, excessive prostration of strength, subsultus tendinum, extreme nervous agitation, constant muttering, low delirium, and total sleeplessness. I said to Dr. Stokes that I wished to try what effects might result from a combination of tartar emetic and opium; I mentioned that I had given it in cases of delirium tremens with remarkable success, and thought it worthy of trial under the circumstances then present. Dr. Stokes stated in reply, that he knew nothing with respect to such a combination as adapted to the case in question, that he had no experience to guide him, but that he would yield to my suggestion. We therefore prescribed a combination of tartar emetic and laudanum in the following form, which is that in which I generally employ the remedies in the treatment of delirium tremens: tartar emetic, four grains; tincture of opium, a drachm; camphor mixture, eight ounces; mix. Of this mixture, a tablespoonful to be taken every second hour. The success of this was almost magical. It is true that it vomited him; after taking the second dose he threw up a large quantity of bile, but it did him no harm. After the third or fourth dose he fell asleep, and awoke calm and refreshed. He began to improve rapidly, and soon recovered.

The next case to which I shall direct your attention is that of Mr. Stephenson, a pupil of Mr. Parr of this hospital. This young gentleman, as many of you may recollect, was attacked with fever about the middle of January. On Thursday evening he complained of languor and malaise, and on the following day felt himself feverish, but without any prominent or decided symptom.

At night he took a dose of calomel and antimonial powder, which had no sensible effect, and the following day complained of shivering, violent headache, pain in the back, thirst, prostration of strength, and sleeplessness. He was ordered to take a combination of tartar emetic and nitrate of potash in camphor mixture, which produced a few loose stools and some diaphoresis; but in consequence of its effect on the stomach, and his complaining much of thirst and epigastric tenderness, the tartar emetic was omitted, and effervescing draughts prescribed. Two days afterwards, the epigastric tenderness still continuing, twelve leeches were applied over the pit of the stomach, followed by a blister which gave relief, and the bowels were kept open by enemata.

He commenced a second time the use of the tartar emetic and nitrate of potash, with the addition of five drops of tincture of opium to each dose, but was obliged to give it up again in consequence of the increase in his gastric symptoms. He now became exceedingly restless, and his delirium began to assume an intense character. Leeches were applied behind the ears, his head shaved, and his temples blistered; he had also a large blister over the abdomen, which gave him considerable relief, but the cerebral and nervous symptoms became much worse. The delirium went on increasing, accompanied by subsultus tendinum, and picking the bed-clothes; he was perfectly sleepless, raved incessantly, and had to be kept down in bed by force. On the seventeenth day of his fever he was in the following condition:—tongue brown and rather dry, no remarkable thirst nor abdominal tenderness, eyes red and ferrety, no sleep for five nights, constant muttering and delirium (which had now assumed the character of delirium tremens), subsultus tendinum and jactitation extreme, urine and feces passed under him unconsciously. I directed the combination of tartar emetic and laudanum to be immediately given, carefully watching its effects. He had only taken two doses when a degree of calmness set in, bringing with it relief to all his symptoms, and before a third dose could be administered, he fell into a profound sleep, from which he awoke rational and refreshed. The mixture was continued every four hours with increasing benefit, he slept long and soundly, and began to improve in every respect. On the second day after he had begun to use the tartar emetic, he took a little porter, which was changed the next day for claret and chicken broth. In about a week he was able to sit up in bed, and seven days afterwards was able to leave the hospital and go to the country for change of air.

Another case to which I shall direct your attention is that of Mr. Knott, also a pupil of this hospital, a gentleman remarkable for his unremitting attention to clinical pursuits, and from whom I derived much valuable assistance in conducting various post-mortem examinations. This gentleman was attacked with fever about the latter part of January, which went on for some time without any particular symptom, except considerable restlessness and nervous excitement. He then became perfectly sleepless, complained of violent headache and thirst, raved, and became exceedingly irritable. Opium, in various forms and repeated doses, either alone or combined with musk and camphor, totally failed in producing sleep, and his condition became daily worse. On the thirteenth day he was in a very dangerous condition; his nervous agitation had risen to an alarming height, and for many days and nights he had never closed an eye. At this period it appeared obvious that if something were not done to calm nervous excitement and restore sleep, he had but little chance of life. Under these circumstances I proposed to Dr. M'Adam, who attended with me, to give tartar emetic and opium. After he

had taken about three tablespoonfuls, he had a copious bilious evacuation, and immediately afterwards fell into a sound sleep, during which he perspired profusely, and awoke in about twelve hours, with every bad symptom gone. The nervous irritability was completely allayed; his thirst and headache relieved; his tongue moist and cleaning; and his reason quite restored. From that period everything went on favourably, and he rapidly gained his health and strength.

In many other cases of fever I have recently employed the tartar emetic and opium with the same remarkable success. A man named Christopher Nowlan was admitted into Sir Patrick Dun's Hospital, on the 3rd of February, labouring under fever. He had been ill ten days, had raving, subsultus tendinum, and appeared unable or unwilling to answer questions. His wife stated that he had diarrhoea for the preceding three days, and that he dozed occasionally, but never slept. He appeared exceedingly low and prostrated, and lay constantly on his back. A succession of flying blisters was ordered to be applied to the chest and stomach, and wine and chicken broth prescribed. He also got the following draught every third hour:—

R. *Misturæ Camphoræ*, fʒj.
Spiritus Ætheris oleosis, fʒss.
Spiritus Ammoniac aromatici, fʒss.
 Moschi, gr. viij.—Misce.

Under the use of these remedies he began to recover from his prostration; but as the sleeplessness and delirium still continued, I ordered him to take the tartar emetic mixture in the usual way. It produced at first two or three full discharges from the bowels, and after he had taken the fourth dose he fell into a sound sleep, from which he awoke much better, and soon became convalescent.

In the case of a patient named Michael Murray, who exhibited the same remarkable nervous irritability and sleeplessness, this remedy was also employed with very striking effects. This man had been ill of fever for ten days before his admission into Sir Patrick Dun's Hospital, and appeared so much prostrated that I ordered him arrowroot with beer. He raved a little on the night of his admission, and remained without closing an eye until morning. The same symptoms were observed on the following day, and his nervous irritability became increased. On the 14th of February he had been five days in the hospital, and had not enjoyed a single hour's sleep. I ordered the tartar emetic mixture to be given: three doses produced sleep; he had no other bad symptoms, and recovered completely.

In another very bad case of maculated fever, the same results were obtained. The patient, Mary Farmin, had got an attack of fever after a fright. She had been eight days ill at the date of her admission, February 25th. She had irregular pulse, sleeplessness, headache, and suffusion of the eyes; moaned and sighed continually, and appeared greatly prostrated. She was blistered, had fetid enemata, and took the chloride of soda internally with some benefit; but the sleeplessness and nervous excitement continued. In this case, though the tartar emetic was not followed by speedy convalescence, still it produced remarkably good effects; after taking four doses of it, she fell asleep, and did not awake until next morning.

Several other cases have occurred both in hospital and private practice, to some of which I now beg leave to direct your attention, observing that I have in every instance been particular in mentioning the names of other profes-

sional gentlemen who witnessed the progress of each case: a precaution tending to prevent exaggeration either in detailing symptoms or describing the effects of remedies.

The case of Mr. William Murphy, an extremely diligent and intelligent pupil at the Meath Hospital is well worthy of notice. The father of this gentleman, a practitioner of well-known reputation at Fermoy, where he has been Physician to the Fever Hospital for many years, arrived in Dublin the very day his son's state appeared to be hopeless, soon after the consultation, when Dr. Stokes and I agreed to use the tartar emetic and opium; Doctor Murphy admitted afterwards that he never felt so much surprised as he was at this treatment, but having entrusted the care of his son to us, he very properly expressed no opinion on the subject, a mode of proceeding he has never since ceased to congratulate himself on, for had he opposed us, the case was apparently so desperate, that it may be doubted whether we would have ventured to put the plan into execution.

Mr. Murphy, aged 20, having been engaged in the diligent study of the fever cases in the Meath Hospital, was attacked with violent symptoms of fever on the 6th of January last. He took a dose of calomel and James's powder, and went to bed; early next morning he was worse, and although he took a purgative draught which operated freely on the bowels, he complained much of headache, and was very feverish; a copious sweat broke out, but was unattended with relief, notwithstanding that it continued with more or less interruption for several days. His thirst was excessive, and he was very restless, depressed, weak, and nervous; the antimonial powder and calomel were persevered in during the second day, and on the third he took more purgative mixture, and twelve leeches were applied to the temples, but they gave little or no relief to the pain in the head.

In short, he grew worse, and was found to be extremely prostrated. On the fourth, his tongue was foul and dry, his stomach irritable, often rejecting his medicine, and producing a vomiting of bilious matter, the pulse quick, and his appearance unpromising. I saw him on the fifth day, when every thing was still worse, and the pain of head much complained of. I directed a continuation of the James's powder, and effervescing draughts. On the sixth day he was still worse, and was reported to have raved a good deal during the night; his bowels were loose, and now for the first time the perspiration entirely ceased, and his skin became hot and dry. I gave him small doses of Dover's powder and chalk. On the seventh day, his countenance expressed great anxiety, and in addition to an aggravation of all the other symptoms, his skin became covered with a measles-like eruption of maculæ, a circumstance which induced me to give the solution of chloride of soda, in doses of twelve drops, every fourth hour, in an ounce of camphor mixture. He got mild diet, as arrowroot and chicken broth, with a little stale bread sopped in tea, night and morning. On the eighth day, no improvement; much raving during the night, symptoms as before, except that the occurrence of some abdominal tympanitis and slight epigastric tenderness induced me to apply six leeches to the pit of the stomach. The bleeding from the leech-bites was moderate, but seemed, nevertheless, to exhaust him. It seemed to check the tympanitic tendency. On the ninth day, was still worse, much stupor, incipient subsultus; towards evening a very hurried and laboured breathing supervened, and he lay entirely on his back, helpless and weak, respiring about 45 times in a minute. As he had not the slightest affection of the lungs or bronchial tubes, this hurried breathing excited the greatest

alarm in my mind, and induced me to apply six leeches behind the ear, with a view of relieving the now increasing stupor, and the evident cerebral congestion.

On the tenth day, I had the benefit of Dr. Stokes' advice. We found our patient in a state truly appalling. He lay panting on his back, restless and without sleep, every muscular fibre in his face and limbs was agitated with spasmodic twitches, giving rise to the greatest possible degree of subsultus, which distorted his face, caused him to bite his under lip every instant, rendered him quite unable to put out his tongue, although he endeavoured to do so. The subsultus prevented us from being able to feel the pulse, now weak and rapid, at the wrist. In the mean time, though he often moaned and raved, he muttered indistinctly; he evidently understood what was said to him, and as far as we could collect, he seemed to suffer much less from pain in his head. Still the temporal arteries were turgid, and his eyes suffused. He had retention of urine, and since yesterday it was drawn off with the catheter.

What was now to be done? Cold lotions to the shaved head had failed—a blister to the nape of the neck had proved useless—we could not venture to rely on more blistering of the scalp—some more powerful remedy must be instantly brought to bear, or our patient was lost. Alvine evacuations had been pushed to the fullest extent; leeches could not even be proposed, so great was the debility. Opium we dared not venture on, seeing that so recently the pain in his head had been urgent, and that the temporal arteries and the conjunctiva still seemed to indicate cerebral congestion; under these circumstances we resolved to try tartar emetic, and we ordered the following mixture:—

R Tartari Emetici, gr. ij.
 Moschi, gr. xxx.
 Mucilaginis,
 Syrupi simplicis, āā, fʒj.
 Aquæ, fʒx.
 Misce, sumat ʒss. omni horâ.

After he had taken about six doses of this medicine, he seemed rather better, and the symptoms of determination to the head appeared less marked; we therefore added fifteen minims of patent black drop to the remaining nine ounces of the mixture, and directed small quantities of porter and chicken broth to be given repeatedly during the night. On the eleventh day, we found a change for the better truly surprising, the pulse had diminished remarkably in frequency, and had become softer and fuller; a warm sweat had broken out, he had raved but little, and had slept tranquilly. We ordered a continuance of the same nourishment and medicines, the latter at much longer intervals; the case need not further be detailed, as Mr. Murphy rapidly recovered, and enjoyed a speedy convalescence. Here, then, is a case which would assuredly have been lost but for the well-tried application of the new method of treatment. I say this emphatically, for Mr. Glyssan, Mr. Boyton, Mr. Clarke, and Doctor Murphy, all anxious and competent observers, assured us that from the moment he began the bottle, its good effects were apparent, and increased after each dose.

The next case I shall mention is that of John Doyle, admitted into the Meath Hospital, May, 21st, 1835; three or four days ill, a strong young man; the symptoms were attended with considerable re-action at the beginning, his

face being flushed, eyes wild, and head aching; he raved much during the night from the fourth day, and had then a full bounding pulse at 105. Venesection was ordered, but he fainted when four ounces of blood had been drawn. Leeches were then applied to the epigastrium. On the sixth day of his illness, his thirst was great, no sleep, skin moist, belly soft, pulse 120, pain in head severe, copious eruption of maculæ. His head was now shaved, and six leeches applied behind the ear, and repeated three times. He was ordered the liquor of the chloride of soda on the seventh day, as the vascular excitement had then diminished, and the maculæ constituted a prominent feature in his case. On the eighth day he was not worse, but his skin was very hot. On the ninth day, eyes suffused, face flushed, much thirst, no sleep, bowels free, belly soft, some epigastric tenderness, tongue loaded, but moist: cold lotions to the head. Tenth day, delirium violent during the night, strait waistcoat necessary, eyes suffused, belly soft, skin very hot, pulse 120, respirations 40, considerable subsultus. Six leeches to be applied behind the ear three times successively.

R. Tartari emetici, gr. iv.

Aquæ, f℥xvj. Misce, sumat semiunciam omni horâ.

Eleventh. Slept very little, delirium less violent, one very large stool, heat of skin less, eruption copious.

R. Misturæ Camphoræ, f℥viij.

Tartari emetici, gr. iv.

Tincturæ Opii, f℥j.

Misce, sumat ʒss. secundâ quâque horâ.

Twelfth. Slept five hours, seems better, but still he passes his stools under him; pulse 120, eyes suffused, skin hot, tongue cleaning, belly soft, bowels loose, maculæ numerous. The same prescription, except that the tincture of opium was increased to ʒ iss. in the eight ounce mixture.

Thirteenth. The medicine was continued for several hours, when he fell asleep, and slept so much and so tranquilly, that it was not thought necessary to repeat it. Pulse 110; subsultus not near so violent; does not rave; knows every one, and answers rationally; light nourishment.

Fourteenth and fifteenth. Improvement continues, but still there is much fever, and many maculæ. About the twenty-first day he was free from fever, but he got no medicine after the night of the twelfth.

This case exemplifies the treatment adapted to the three different stages—1st, Bleeding, leeches, cold lotions: 2nd, Tartar emetic in large doses, combined with leeching: 3rd, Opium boldly administered in combination with tartar emetic.

The following, communicated by Mr. Knott, excited much interest among the practitioners of the neighbourhood:—

“On the 20th of July last, I was called to see a comfortable farmer, residing near Boyle, in the county Roscommon, named J. K—. He was aged 30 years, and had been ill twenty-one days. His fever commenced with rigor, headache, and pains in the loins, the headache being particularly severe. In the commencement of the fever he had raved incessantly; slept but little; had frequent retching; his bowels were confined. For these symptoms, he was purged with black bottle to excess, and bled largely and frequently, but without any permanent alleviation. On the twenty-first day of his fever he presented

the following appearance and symptoms :—his countenance was expressive of great anxiety and ferocity; his eyes were bloodshot and wild; teeth covered with sordes; tongue brown and furrowed with clefts; he raved violently, and attempted to get out of the bed several times; great excitement and subsultus; his skin was very hot and dry; all the secretions much diminished; urine high coloured; no eruption; no epigastric tenderness; abdomen slightly swollen and tympanitic, but pressure seemed to give no pain; his bowels had not been open for three days. That night he was ordered 40 drops of the tincture of opium, at the same time that an enema was exhibited; the bowels were once opened; he slept none during the night, and the excitement was, if any thing, greater than before. Under these circumstances it was thought advisable to administer the tartar emetic and opium, in the manner I had seen it exhibited whilst acting as clinical clerk under Doctor Graves, in the Meath Hospital. He got an ounce of a mixture, consisting of eight ounces of camphor mixture, four grains of tartar emetic, and a drachm of laudanum every second hour, and after he had taken the third dose he had a large watery evacuation; after he had taken the fourth dose he fell into a calm sleep, in which he continued for nearly twelve hours; he awoke much refreshed and covered with a profuse perspiration. He was able now to recognise his friends; the subsultus and general excitement were greatly, but not entirely allayed; his pulse, which had been 120, small and wiry, had fallen to 98; he continued his medicine during the next night with the greatest benefit. From this period this man's recovery was rapid and unexpected, and at the end of three weeks he was able to attend to his business."

The next case was reported by one of the pupils of the hospital. Ellen Dowden, aged 18, admitted into the Meath Hospital on the 8th of June; states that she has been ill twelve days. Her illness commenced with the usual symptoms, headache, rigor, loss of rest and appetite: previously to her admission she had been purged freely without any relief. On the day of her admission she was flushed; skin dry and very hot; the whole body was covered with macule; she was heavy and stupid; answered questions incoherently; her eyes were slightly suffused; she called out continually for drink; her tongue was dry, brown, and rough; seemed to have much pain on making pressure on the epigastrium; the belly was swelled and tympanitic; bowels confined; no cough or headache; pulse 108, wiry: eight leeches to be applied to the epigastrium; head to be shaved and cold lotion applied.

R. Hydrargyri cum Cretâ, gr. x.
Pulveris Ipecacuanhæ compositi, gr. ij.
Misce; fiat pulveres quatuor, in die sumendi.

9th. Much worse to-day; slept for about one hour yesterday evening; lies continually on her back; seems to take notice of what is going on about her; raved occasionally during the night; teeth and mouth covered with sordes; tongue very dry, rough, and coated with brown; pulse fallen to 80, very small, but less wiry than on yesterday; epigastric tenderness much relieved, headache gone, macule less.

To have a pint of beer and arrowroot.

R. Solutionis Chloridi Sodæ, min. xv.
Misture Camphoræ, fʒj.
Guttæ nigræ, min. j.
Misce, fiat haustus quater in die sumendus.

10th. Raved the whole night ; subsultus general and violent ; pulse 120, sharp ; slightly dirotus ; slept none ; face much more flushed than on yesterday ; eyes suffused ; passes under her ; maculæ much diminished ; has no headache ; bowels rather free ; lies on her back with her feet drawn up ; has no chest symptoms ; respiration natural ; ordered ice in bladders to the head ; with a mixture composed as follows :—

R. Misturæ Camphoræ, fʒviij.
Tartari emetici, gr. j.
Misce, sumat fʒss. omni semihorâ.

11th. When seen yesterday evening she was very violent ; endeavoured to get out of bed ; screamed loudly, and complained of bad treatment ; she had slept none at this period, her bowels had been freed copiously, but she still continues to pass under her ; she endeavours to throw the ice bags off her head, and requires some violence to hold her in bed ; subsultus extremely violent ; face much flushed ; eyes red ; she was ordered the following :—

R. Misturæ Camphoræ, fʒviij.
Tartari emetici, gr. iv.
Tincturæ Opii, fʒj.
Misce, sumat fʒss. secundis horis.

She had taken but two tablespoonfuls when she began to sleep ; she has continued to doze to the hour of visit ; she is much improved in every respect ; she answers questions rationally ; her face is not so much flushed ; eyes less suffused ; has no headache ; pulse 120, not so sharp ; skin still very hot ; tongue moist and cleaning. She was ordered not to take any of the mixture if she continues better. Enema emolliens statim. Improvement went on steadily until convalescence was established.

The next case I read from the report of Dr. Dwyer, who was the physician in attendance :—"In compliance with your request, I send you an abstract of the case of Stephens. It was one of spotted fever occurring in a young man of temperate habits, setting in with languor followed by rigor. I saw him on the fourth day, when there was unpleasant heat of surface, with general tenderness all over the body, particularly remarkable over the epigastric region ; the chest, arms, and hands, studded with florid maculæ ; headache and pain of back distressing ; light disagreeable ; pulse 108 ; tongue moist. He had an oil draught, followed by small doses of hydrargyrum cum cretâ with Dover's powder. On the sixth day of his fever, being very restless and sleepless, eyes slightly suffused, and pulse 120, I gave him an eight ounce mixture, containing four grains of tartar emetic, and a drachm of tincture of opium ; two tablespoonfuls to be taken in the evening, and one every hour afterwards. On the next day the report was, that he had slept a good deal during the night, having fallen asleep after the third dose, three hours after which a fourth was administered. He is dozing, pulse 120, skin hot and dry, bowels four times moved ; ordered to continue his mixture ; watching its effects. On the eighth day, in consequence of severe purging having set in, (he had taken but two doses of the mixture since last report), the epigastrium becoming very tender, and pulse 132, his medicine was omitted and a cretaceous mixture ordered instead, a small quantity of port wine diluted, and a blister to the abdomen ; the blister was not applied, yet the purging was checked. On the evening of the ninth day, as he complained much of want

of rest, and there was no headache, I directed him to have two doses of the tartar emetic and opium mixture, within an interval of two hours.

"I was compelled at this period to give up attendance on this case in consequence of an accident; it was, however, taken up by Dr. Grant, who kindly kept notes, and with whom I had daily conferences. He reports our patient on the tenth day, to have suffered an accession of fever, seemingly caused by abdominal irritation; he complained much of headache; the eyes were injected; skin hot and dry; tongue brown and crisp; pulse 144; respiration 49; throbbing of the temporal arteries; when undisturbed, raving and moaning, but answers rationally; abdomen full and tense, tenderness in region of colon, with some tenesmus; sleeplessness. He was given four grains of calomel and three of extract of hyoseyamus, followed by an oil draught; a blister was applied to the abdomen, cold to the head, and warmth to the feet. The medicine acted well, producing a number of dark-coloured motions, with some relief of the symptoms; the sleeplessness, however, still continuing. On the twelfth, raved considerably the previous night, with great restlessness; headache with darting pain; pulse 120; still answers rationally, but raves when left to himself; abdomen soft; he was again put on the use of the tartar emetic and opium mixture, to have one table-spoonful every hour for three doses, and then only every second hour. On the following day there was a considerable improvement; he had slept well, and perspired freely in the night; no raving: headache had gone; pulse 96; heat of skin less; to continue his mixture. On the fourteenth day he was much better; he wished for food. On the fifteenth he suffered a relapse, from his appetite having been imprudently indulged; he was given an oil draught, and directed to resume his mixture when the bowels acted. He continued from this time to improve, the interval between the doses of his mixture was gradually lengthened, and on the seventeenth day he was convalescent.

"In this case the good effects of this mixture were evidenced by perspiration and rest. This lad's mother and sister were just convalescent from spotted fever; the former four weeks, the latter a fortnight. In the mother's case, I was not applied to till the tenth day; it went on to the twenty-first. There was not any organ particularly implicated; she was treated with stimulants, carbonate of ammonia, porter, and blisters. In the daughter, the fever was very severe to the eleventh day, when it terminated by profuse perspiration. She suffered principally from pain in her head and back, with intolerance of light, and was treated with mild aperients, followed by diaphoretics with hyoseyamus. In neither was sleeplessness distressingly remarkable. Another brother was seized with the same form of fever a few days after the subject of this case had taken ill; he was on the fifth day transferred to Sir Patrick Dun's Hospital.

"I experienced marked benefit from this form of prescription in a case of melancholia, occurring in a female aged 45, consequent on a severe domestic affliction. The exhibition of it here, however, was followed by considerable debility, requiring stimulants. This effect I consider to have been, in some degree at least, attributable to the patient having for some days previous to its exhibition refused food, and possibly been suffered to remain too long under the sedative influence of this medicine without having been offered nourishment."

The following is also an interesting example of the efficacy of this plan of treatment:—

John Dillon, aged 15, a servant, admitted into Hospital, 5th June, 1835,

several days ill. On the day of his admission he had headache, thirst, heat of skin, loss of appetite and rest; his face was flushed and bloated; eyes suffused, red and prominent; skin hot and dry. He complained of slight epigastric tenderness and violent headache; pulse 120, full and bounding. His whole body was covered with maculæ; bowels regular, tongue brown, furred, and dry. Ordered

R. Aquæ, fʒj.

Liquoris Chloridi Sodæ, min. x.

Misce, fiat haustus quartis horis sumendus.

Applicentur hirudines xii. post aurem, et repetatur applicatio si opus sit.

7th. The leeches bled freely; head appears to be relieved; he raved a good deal during the night; his pulse has fallen to 100, but still very full; has a slight cough, and some bronchitis. Ordered to repeat the draught, and apply four leeches to the larynx.

8th. Slept very little; does not appear improved; very irritable; raved, and was rather violent during the night; cough better; tongue very brown and dry; bowels confined; pulse 100; respirations rather hurried. Ordered to repeat the draught, and to have an emollient enema in the evening.

9th. Epigastric tenderness much increased; raved continually during the night; slight subsultus; eyes very red, wild and staring; pulse 114, very full; tongue dry and brown; teeth covered with sordes. To repeat the draughts, and apply eight leeches to the epigastrium.

10th. Appears better to-day; epigastric tenderness much relieved by the leeching; his strength is much prostrated; wishes for more food; pulse 100, and still full; slept none. Ordered arrowroot, and to repeat the draughts.

11th. The fever is again much increased; raved violently during the night; great prostration; slept none; subsultus very violent; great thirst; pulse 130; complains of a heaviness, but no pain in head; skin very hot and dry; eruption undiminished. Ordered to repeat as before.

12th. All the symptoms much aggravated; face flushed and red; eyes suffused and ferrety; teeth covered with sordes; lips parched and cracked; tongue black and very dry; subsultus general and violent; does not sleep either by night or day; exceedingly irritable; pulse 130 and jerking; pupils contracted; he lies on his back with legs drawn up; extremities rather cold. He was ordered warm applications to his feet and the following prescription:—

R. Tartari emetici, gr. ij.

Misturæ Camphoræ, fʒviiij.

Tincturæ Opii, fʒij.

Misce, sumat cochleare unum amplum secundâ quâque horâ.

13th. The nurse reported that after he had taken the mixture three times, he slept calmly for nine or ten hours, the first time for the last week. It operated largely after the second dose, the stools being thin and bilious. He has ceased to rave; the suffusion has quite disappeared; tongue is moist and cleaning. He slumbers continually; subsultus completely subdued; answers questions rationally; pulse has fallen to 98 and soft; ordered to repeat the mixture.

14th. Slept continually since last report; general appearance much improved; perspired profusely during the night. He was perfectly sensible

from this day till the 17th. He continued to improve rapidly in strength and appearance.

17th. Convalescent.

And with one more case I shall conclude for to-day. Mr. S——, residing in College, was attacked with headache on the 3rd February, 1836, and fever commenced on that or the following day. He was judiciously treated by Mr. Barker, of Britain-street, until the fourth day of the fever, when an increase of headache and pain in or behind the ball of the right eye, induced him to call me in. A bleeding from the arm much relieved the pain, and he spent a tranquil night. He got calomel and James's powder in small doses. On the 5th no change. Sixth day of fever, maculæ began to appear, and his state became more alarming. Seventh day, maculæ abundant, restlessness, debility, very frequent sighing, thirst, &c., with a sharp pulse, and return of headache. Leeches to head and nostrils were ordered; the latter because of an evident tendency to epistaxis. Eighth. Sir Henry Marsh saw him along with us. Ninth and tenth. Grain doses of Dover's powder added to his medicine four times in the night, but did not procure rest.

Eleventh. Perfectly sleepless night and day; ordered in the evening, one grain of tartar emetic, four ounces of camphor mixture, and one scruple of laudanum; one tablespoonful every second hour. Twelfth. Moisture on skin; began to sleep after second dose, and slept several hours tranquilly; is to-day quite free from muttering and raving, which had commenced on the tenth day, and increased on the eleventh; so that when left to himself he lay on his back, constantly speaking, but not in a loud or boisterous manner, his eyes being all the time open; when addressed he answered quite rationally, but on our quitting the room began again immediately to ramble. This group of unpleasant symptoms having disappeared, we did not continue the medicine, but ordered palliatives and mild nourishment; in the evening it was judged right to apply a blister to the nape of the neck. Thirteenth day. Maculæ abundant; was quiet during the night, but did not sleep at all; exhausted and nervous; other symptoms moderate; pulse 104; tongue moist; abdomen a little swollen and slightly tympanitic; turpentine injections; palliative diuretic draughts; chicken broth; claret and water. At five p.m. I again saw him, and found him still quite sleepless, but without headache; bowels moved, but still slightly tympanitic. Fearing the continued exhaustion from want of rest, I now ordered a mixture consisting of one ounce of mucilage of gum arabic, seven ounces of camphor mixture, three grains of tartar emetic, and one drachm by measure of laudanum; half an ounce every second hour, until sleep comes on.

At ten, Sir Henry Marsh and Mr. Barker saw him; he had slept an hour; appeared drowsy, and did not complain of headache; two doses of the medicine had been given; he remained awake until eleven, when another dose caused him to sleep until three; at four another was given, after which he slept until eight, and awoke much refreshed, and much improved in every respect; his belly had not been moved, and was still slightly tympanitic, a symptom which yielded to the administration of two drachms of castor oil exhibited in the form of an aromatic emulsion. In the evening he was ordered to take four drops of black drop, but this procured no sleep during the night. On the morning of the fifteenth day we found him somewhat exhausted from a sleepless night, but with much less fever and no headache: pulse 94, soft; for the first time we remarked subsultus: a family idiosyncrasy, rendering musk peculiarly disagreeable, or even intolerable, we ordered a

draught containing two drops of black drop, and fifteen of Hoffman's liquor, every fourth hour. In the evening he had slept very little, so that I resolved again to recur to the antimonial opiate, two spoonfuls of which produced sound refreshing sleep for several hours. In the morning he again got castor oil; and on this, the sixteenth day, his pulse was only 70; but still, though the subsultus was diminished, a remnant of it could be perceived, so that he could not be pronounced out of all danger.

The conclusion of this case is peculiarly instructive, and proves how insidious is the progress of fever, and how unsafe the condition of a patient, whose brain and nervous system have received a violent shock, even although the immediate consequences of that shock have been averted by the employment of decided treatment. On the sixteenth day we have seen an abatement, or rather a disappearance of almost every symptom of the disease, save and except a slight, a scarcely perceptible remnant of the subsultus. Great care was taken to prevent his being disturbed, and the strictest attention as to diet was enjoined; indeed he was remarkably disinclined to taking food, and it was with great difficulty that we could get him to consume a sufficient quantity of mild farinaceous diet. On the night of the sixteenth day he slept tolerably. The seventeenth day was passed without any change; but he slept none that night.

The eighteenth day he was perfectly free from fever; pulse 70; tongue moist; bowels opened by medicine. That day he conversed too much to his friends about his removal to the country, his future plans, &c.; but, nevertheless, he slept several hours towards evening. This sleep was disturbed and chequered by dreams, and on awaking about eleven o'clock, he was wandering, and got eight drops of black drop, which procured no rest; on the contrary he got several times out of bed, and spoke incoherently. The raving had all subsided at 10 a.m. on the nineteenth day, when I was in hopes it was entirely owing to temporary excitement, and would not return; an opinion rendered probable by a total absence of all symptoms of general or local vascular excitement, of headache, &c. In this expectation, however, I was disappointed, for early in the afternoon he became incoherent; raved more and more every hour; complained of headache; could not bear the light; and when I saw him at seven, he was quite irrational; supposed himself to be travelling; and when questioned he seemed not to understand; his pulse had fallen below 60; was soft, irregular, and intermitted very frequently; skin not hot; feet cold; features contracted; tip of nose cold; he had eaten stirabout in small quantity twice during the day, but in a voracious unnatural manner; his eyes were a little red, and everything wore a most threatening aspect.

What was now to be done? In directing his head to be shaved anew, and in applying blisters to his scalp and temples, I felt I was proceeding on sure grounds; but the indications for the internal treatment were less obvious. We had arrived at the nineteenth day, and he had gone through a debilitating fever, and had been submitted to a very active mode of treatment. Were we to leech the head? were we to apply cold? and should we immediately endeavour to mercurialize the system by means of mercurial preparations, given internally and applied externally? Such would have been the treatment a patient, under similar circumstances, would have undergone at the hands of any practitioner a very few years ago; and I have no doubt that a treatment of this nature would have speedily brought matters to a fatal termination.

The writings of Gooch, however, who pointed out the diagnosis and treat-

ment of certain cases, usually confounded with inflammatory hydrocephalus, and the influence of the truth of Dr. Gooch's statement, as illustrated by several examples in our own practice, determined Sir Henry Marsh, Mr. Barker, and myself, to rely on the severe blistering locally, while internally, we ordered a draught consisting of two grains of carbonate of ammonia, twenty drops of Hoffman's liquor, and one ounce of camphor mixture, to be taken every third hour. Warmth was applied to the feet, and he was supplied with warm whey. Shortly after our visit he fell asleep, slept with little interruption for about seven hours, and awoke perfectly rational; and at eight o'clock next morning, being the twentieth day, we found him much better in every respect; the only vestige of this alarming attack that remained being some intermission in the pulse, which had become in other respects much more natural and fuller. The bowels had not been opened; a circumstance I mention because, no doubt, some would have ordered purgatives on such an emergency, a practice which the fallen, soft state of the belly did not seem to us to call for, and which our view of the nature of the case prevented us from proposing. We ordered farinaceous diet, and a repetition of the draughts, at longer intervals. In the evening of the twenty-first day the pulse had lost all remnant of irregularity or intermission, and the disturbance of the nervous system had entirely subsided: from that period his convalescence commenced.

One fact connected with the cases just related is very striking, viz., the small quantity of laudanum which, in most of them, was sufficient to induce sleep; a circumstance only to be accounted for by the presence of the tartar emetic, which no doubt exerts, when given in duly regulated doses, a powerfully tranquillizing effect on the nervous system. It is also deserving of remark, that the combination very seldom gives rise to any of the unpleasant symptoms that so frequently arise when opium alone, or any of its preparations, are given with a view of producing sleep at an advanced period of fever. The addition of one ounce of mucilage, and one ounce of simple syrup to the mixture, seems to render it less likely to disagree with the stomach. Towards the termination of fever, it not unfrequently happens that a sudden or gradual determination of blood to the head arises, and which requires a repetition of a modified system of antiphlogistic treatment, aided by blisters. This state, I have reason to believe, may be often prevented from occurring, by a timely attention to procuring sleep; for a patient in fever, who has passed several sleepless nights, is on the verge of cerebral congestion or inflammation, as is testified by headache, wandering, and the redness of the conjunctiva. Here it is that the treatment I recommend is so advantageous, when timely applied; for if it be deferred until cerebral inflammation has set in, opium in any shape is worse than useless.

The particular state of the nervous system to which this combination of remedies is best adapted, may occur along with other symptoms produced by functional or organic lesions of various organs, and which prevent it from producing the wished-for beneficial result. Thus, when the belly is tense and swollen, this remedy will generally fail; but I think that I am warranted in asserting that in fevers, properly treated from the first, tympanitis may commence, but will never become considerable; for, if the attention of the practitioner be applied to this symptom, the moment it begins to show itself, he can in most cases succeed in arresting its progress. I have likewise seen several cases of fever, where I expected benefit from the tartar emetic and opium, and in which no good result followed the exhibition of these medi-

cines ; such failures must always occur with respect to every remedy we apply in disease, but they do not invalidate the evidence of facts, such as I have brought forward in proof of their frequent utility.

In connexion with this subject, I beg leave to draw your attention to the occurrence of *delirium traumaticum* in fevers, in consequence of the irritation produced by blisters, a species of delirium apt to be mistaken, especially in children, for the delirium ushering in hydrocephalus. I shall not do more now than advert to this subject.

Before concluding, it is right to remark that the relative proportions of tartar emetic and laudanum in the mixture must be varied according to circumstances. When congestion of the brain is known to exist, or is feared, the tartar emetic must not fall short of four grains in the eight ounces, while the laudanum should not exceed half a drachm ; but where nervous symptoms predominate, the laudanum may amount to one drachm, and the tartar emetic to two grains : no general rule, however, can be laid down, *and the practitioner must in all cases watch the effects of this medicine, from hour to hour*, until he ascertain whether it agrees with the patient or not. Where a life is at stake, we must spare no pains, and must not reject a remedy because its powers render it an instrument of good or evil, according as it is administered carefully or otherwise.

LECTURE XVIII.

MACULATED FEVER.—TARTAR EMETIC IN LARGE DOSES IN THE ADVANCED STAGES OF MALIGNANT FEVER.

WHEN I last addressed you, I spoke of a very important topic—the administration of tartar emetic and opium, in the advanced stages of spotted or maculated fever. A few observations descriptive of the present epidemic fever,* appear necessary. The commencement is frequently by no means violent, in proportion to the subsequent danger, and the patient often appears merely to labour under the symptoms of a common feverish cold, seldom preceded by violent rigors, but attended by a frequently recurring sense of horripilation. The pulse in the very beginning seldom exceeds 90, and in nearly half the cases it falls after a few days to 80, 70, or even lower. This slow pulse I observed in many of the pupils, and in all it was found to accompany a very tedious and dangerous form of fever. Mr. Sangster, Mr. Graves, Mr. Harris, and Mr. O'Flaherty, were all so affected; for none of these gentlemen had a pulse exceeding 70 in a minute, for many days before the period of the greatest danger. In other epidemics similar cases have occasionally occurred, but in none near so frequently as in the present. When the pulse was thus tranquil, the skin was not perceptibly hotter than natural, although occasionally a slight degree of the calor mordax could be detected.

Patients with a slow pulse not unfrequently had little to complain of at first; for the headache, general pains, thirst, and restlessness, generally underwent a notable diminution, in consequence of sweating, which came on in the commencement—the appearance and the good effects of which were well calculated to deceive the practitioner into a belief that the fever had terminated. A more accurate examination, however, showed that this was not the case; for the tongue still continued much loaded, white in the centre and red at the tip, and the apparent subsidence of the fever was found to be accompanied by a remarkable increase of debility. As the disorder proceeded, a slight rash, like ill-defined or suppressed measles, became observable in some, before the fourth day, but much oftener about the seventh. This maculated appearance of the skin increased rapidly, spreading over all parts of the trunk and extremities, and in many amounted to a well-marked efflorescence of a dusky red colour; in others it was as it were suppressed, and was less obvious, but was still discernible by an experienced eye, appearing beneath as if veiled by the skin. It was not totally absent in one case out of twenty, which induced me to name the disease *maculated fever*.

So the patient continued, in general, until the ninth, tenth, or eleventh day, resting sufficiently at night, with a moderate or even a slow pulse, some thirst, foul tongue, little or no nausea, epigastric pain, or abdominal tenderness of any sort, and, in fact, without a single symptom calculated to excite

* 1834-'35.

alarm. About this period of the complaint matters began to assume a more threatening aspect; debility manifestly increased; the mind at times was evidently incoherent, particularly after awaking from sleep, and then raving during the night; restlessness—frequent attempts to get out of bed very generally supervened in the course of a few days. The pulse, meantime, rose very suddenly in many, and continued to be frequent during the period of danger. Thus, on the tenth day, Mr. Sym's pulse rose from 85 to 120, and so continued until about the twentieth day, when improvement commenced. The same sudden rising of the pulse took place on the ninth day in Mr. M'Namara, and he died on the fourteenth day. In others, as I have already remarked, the pulse continued tranquil throughout.

Thus, it was very curious to see a patient with a skin *of a natural temperature, a perfectly natural pulse, tranquil respiration, clear eye, no headache, a soft and fallen abdomen, without the slightest tendency to epigastric tenderness*: it was very curious, I say, to see such a patient in a state, nevertheless, of extreme danger, passing both fæces and urine under him; raving, incoherent, or with a low muttering delirium; subsultus daily increasing until it became excessive; the greatest possible degree of debility; a dark macular efflorescence, and at length total sleeplessness. How many theories of fever were refuted by such a case! Usually, as the disease continued, and when the patient was in a very dangerous state—but seldom or never before that—the intestines began to be inflated, and the belly gradually became tympanitic; a circumstance of bad omen, and which was often the precursor of hiccup.

When the symptoms did not yield to the efforts of nature or art, the congestion of the intestinal mucous membrane, indicated by these symptoms, was soon followed by indubitable evidence of cerebral congestion—such as restlessness, suffusion of the adnata, and contraction of the pupils; this last was the most fatal of all symptoms. In two or three cases—as, for instance, that of Mr. Cookson—the cerebral congestion produced repeated fits of convulsions on the thirteenth day, and yet he recovered. The same happened in a young woman in Sir P. Dun's Hospital, in whom the convulsions occurred on the fifteenth day, and were more violent on the right side than on the left, producing strabismus, and insensibility of the pupil of the affected eye. This girl lost the use of her left side on that day, but recovered it on the following; and eventually, though with difficulty, was completely cured. Frequent fits of convulsions, affecting the right side more than the left, took place on the seventh day in the daughter of a clergyman residing in the Liberty, and were followed by a stupor bordering on coma, which lasted for many hours. All these patients were covered with maculæ.

There is one circumstance connected with this epidemic, which I have also frequently witnessed in other sporadic and epidemic fevers, to which I wish forcibly to draw your attention; it is the existence of tenderness generally over the body; and which causes the patient to shrink from the pressure of the finger, applied to any part of the integuments. This tenderness arises from an irritated state of the nervous system generally, and is usually accompanied by severe dorsal or lumbar pain, indicating spinal congestion. Now, in a practical point of view, this tenderness requires attention; for if it be overlooked, and if the physician applies pressure, in such cases, only to the epigastrium, he will be deceived into the belief that the tenderness he there discovers is confined to that part, and indicates the application of leeches to the pit of the stomach.

I am thus particular in dwelling on the symptoms manifestly denoting a

combination of primary general nervous excitement with a secondary cerebral congestion ; for, on the successive development of these states the treatment during the latter stages hinged. I wish you clearly to understand, that, after the headache and cerebral excitement which accompanied the very commencement of the fever had been subdued, or had ceased, after sleep and calm had returned, and had continued for many days, then a new order of things commenced—subsultus, watchfulness, muttering, raving, involuntary discharges, &c. all denoting great derangement of the nervous system ; but still there was no proof that this derangement depended on cerebral congestion.

After a few, or after many days, however, unequivocal symptoms of the latter set in ; the face and eyes became suffused and flushed ; the pupils manifested a tendency to become contracted, and occasionally convulsions took place ; the patient became also totally sleepless. When the latter and dangerous period of the fever was accompanied by the former nervous group of symptoms *alone*, they yielded to wine, musk, porter, and opiates ; but when the symptoms indicating cerebral congestion were superadded, then it was that the case assumed so great and striking a similarity, so far as the functions of the nervous system were concerned, to the well known variety of delirium tremens, accompanied by cerebral congestion, to which I before referred—to that variety of delirium tremens, in fact, which only can be successfully treated by the judicious, but bold exhibition of tartar emetic combined with laudanum. *It is the discovery of the utility of this practice in the advanced stages of spotted fevers, that I claim peculiarly as my own ;* for there is not in the writings of any author on the subject, the slightest trace of such a method of treatment to be found. As this method has manifestly saved many, many lives, under a combination of circumstances apparently hopeless, I cannot avoid congratulating myself upon being the first to propose a practice which has not only diminished the rate of our hospital mortality* in a remarkable manner, but has been the means of saving many of my friends and pupils ; for, without its adoption, our class at the Meath Hospital would have been more than decimated, whereas at present we have to regret the loss of but one pupil.

One word more as to the circumstances under which this plan was applicable. They were exactly the circumstances which formerly would have been believed to demand the fresh application of leeches to the head, of cold lotions, and of blisters ; for it was formerly argued, and justly, we have in this advanced stage of fever not merely debility to combat—not merely general nervous excitement to overcome—but we have also to contend with cerebral congestion. The latter is the most formidable of the whole · it was therefore said, let us meet it boldly ; let us leech, let us purge, &c. ; but I need not repeat to you the details of cases illustrating the ill effects of this practice. Suffice it to remark, that you might as well attempt to cure delirium tremens with mere leeching, purging, and blistering. Observe, I am now speaking of the advanced-stages of fever ; for where cerebral congestion takes place in the beginning or the middle of fever, then there is no room for opium—then will the practitioner have recourse to the well known reme-

* Seventy-three fever patients—namely, forty-one males, and thirty-two females, were treated in the clinical wards at Sir P. Dun's Hospital during the months of February, March, and April. Of these, more than fifty were cases of maculated or spotted fever, and yet we lost but two females and one male. The latter was in a hopeless condition when brought in, and one of the former was attacked by varioloid just after the crisis of long-continued spotted fever.

dies for active cerebral congestion ; viz., purging, leeches, cold lotions, ice to the head, &c. In the preceding sketch of the present epidemic, many important features have been omitted. The outline is only complete in such parts as were required to be filled up for the purpose of illustrating the principles which directed me in devising and employing this new plan of treatment. I cannot better illustrate these principles and their results for you than by the details of some additional cases ; and first let me call your attention to that of Mr. Thomas O'Flaherty.

This young gentleman was seized with the usual symptoms of maculated fever, of an insidious character, and not attended with any appearance of danger during the commencement of the disease. His pulse never rose above 100, and before the seventeenth day of the fever, it had fallen to 70, *at which it remained during the period of greatest danger.* The only circumstance which excited alarm in my mind, at an early period of his illness, was a great degree of mental apprehension, manifested in his anticipating an unfavourable result, together with a tendency to sleeplessness from the beginning. On the tenth, abdominal tympanitis was observed, but this was removed in two days by appropriate remedies. On the twelfth day he was very restless, and although he was perfectly rational in his answers to questions, and did not complain of headache, had neither flushing of face, nor heat of the integuments of the head, yet he frequently talked incoherently when left alone, and towards the latter part of the day began to make repeated attempts to get out of bed. On one occasion he succeeded, and walked down stairs, from his bedroom to the parlour. His tongue was brown and dry. Under these circumstances, I ordered him the mixture containing four grains of tartar emetic and one drachm of laudanum, in eight ounces of camphor mixture ; of this he took two drachms every second hour. The effects produced by this medicine were not very rapid, but still they were decidedly beneficial, for he gradually became calmer, wandered less, did not attempt to get out of bed, and, during the night, got some sleep. His bowels being confined, the mixture was now laid aside, and purgatives exhibited ; I should have remarked that the tartar emetic mixture caused profuse sweating.

On the fifteenth day of the fever, his bowels having been acted on, he was ordered twenty drops of Battley's solution of opium at night, which produced a comfortable night's rest—the first he had enjoyed since his illness. On the sixteenth, the sweating continued, the belly was fallen, and he was quite rational, but had marked subsultus ; he got another dose of Battley, but it produced no sleep ; he had been allowed chicken-broth, beer, &c., for some days. On the seventeenth day, the sweating had ceased, and his skin had become hot and dry ; great restlessness, constant muttering delirium, subsultus, tremors, picking the bed-clothes, involuntary discharges : porter in small quantities, chicken-broth, fetid injection, and twenty drops of Battley at night. On the eighteenth, he was reported to have had no stool from the injection, and no sleep whatsoever. He answered incoherently, thought his bed was covered with lancets, some of which he collected carefully, and reserved for me ; belly not tumid, but obstinately confined ; pulse 100. The whole of that day, and the following, were employed in procuring alvine evacuations, preparatory to again giving opium ; in the mean time, all his symptoms were aggravated, and when I visited him on the evening of the nineteenth day, his state was anxious in the extreme, as he had enjoyed no sleep for many days and nights, and was in a melancholy state of mental incoherence, raving, tremor, and subsultus.

Here came the crisis as to treatment. I remember well the time when a patient so situated would have been again purged, his head shaved, a few leeches applied to the temples, and a blister to the nape of the neck, while perhaps wine and musk would have been exhibited internally. How many persons have I seen so treated by the most eminent physicians, and how unsuccessful was the practice! To have talked of giving opium under such circumstances, and when the marks of cerebral congestion were so evident, would have been regarded as absurd; my experience on former occasions, however, determined me to give opium, and as the danger was imminent, I gave it boldly. To the eight ounce mixture, with four grains of tartar emetic, we added one drachm and a half of laudanum; of this he took one ounce every second hour, from eight in the evening until he had taken five doses. This produced copious sweating; the skin became cooler, he raved less, but still no sleep; at four on the following morning, his pulse became 70, and respiration tranquil; he got twenty drops of Battley, and at half-past five in the morning, twenty-five drops more. He had now taken, within a short time, about one drachm of laudanum, and forty-five drops of Battley, combined with nearly three grains of tartar emetic. He was tranquil, but did not close his eyes, and muttered occasionally; subsultus less. His pupils now became more and more contracted, his eyes less expressive and duller, and when I came at eight in the morning, he was evidently deeply narcotised, although not yet asleep. I thought that all was lost; but still, observing the respiration to be tranquil, and the pulse regular, I indulged a faint hope that sleep might still supervene. His eyes now became still more inexpressive, the lids gradually closed, his breathing became prolonged and deep, and at half-past eight he was buried in a profound and tranquil sleep, which continued for nine hours, when he awoke, spoke rationally, said he had no pain in his head, took some drink, and fell asleep again. Next morning not a single symptom of fever remained.

The following cases prove that tartar emetic in considerable doses may be administered with advantage at a period of fever in which it was usually thought to be inapplicable, and to an extent which even now I cannot but consider as remarkable. When I first used tartar emetic and opium, I had not pushed the former remedy with the boldness and decision I have since done, for my experience only gradually accustomed me to a method of proceeding contrary to preconceived opinions, and my views of the powers of the remedy only gradually enlarged as I became more confident of its safety. It is but right to add, and I do it with gratitude, that I received much assistance and encouragement from the views of Dr. Marryatt of Bristol, published in 1788, but of which I and the profession in Ireland, and I may add in England, were generally ignorant until they were noticed in the first volume of the *British and Foreign Medical Review*, page 416. This notice of a work of which I had never before heard, and the testimony it contained that tartar emetic may be exhibited in considerable doses, and with advantage, at advanced stages of malignant fever, led me to attach more importance to this remedy alone, and uncombined with opium, and determined me to adopt a bolder line of practice in future—a determination which the event fully justified.

Some there are who will take occasion to remark that I can have no claim to originality on this occasion. But all who have watched my practice in the hospital, nay all who have taken the trouble of reading my lectures and successive publications on this subject, will at once acknowledge that I proceed-

ed on this path of investigation with no other guide but an analogy derived from an observation of the effects of tartar emetic and opium in delirium tremens, a disease undescribed in the time of Marryatt. Every one the least conversant with the treatment of fever in private and in hospital practice in Dublin, London, and Edinburgh, will allow that no one, during the present century, ever taught or practised the exhibition of tartar emetic at the stage of typhus fever in which I have recommended it. Not a single hint at such a treatment is given in any of the numerous contributions on the treatment of typhus which form the valuable work edited by Dr. Barker and Dr. Cheyne. Where is there even one allusion to this practice in Armstrong, Smith, Tweedie? And what use of it in Good, Thomas, Mackintosh, or in the *Cyclopædia of Practical Medicine*? Where is it mentioned or inculcated in the *Edinburgh Medical and Surgical Journal*, or in *Johnson's Medico-Chirurgical Review*? Nowhere, although the treatment of fever is often the subject of anxious discussion.

So far suffices with regard to the novelty of the matter, for it is useless to argue with persons so stupid as to confound the practice I recommend with the well known and popular use of tartar emetic as an emetic or a diaphoretic in the commencement of febrile diseases generally. That I did not come upon this method sooner I regret infinitely, for since its adoption my practice in hospital and in private has been much more successful than formerly. Nay, shortly before Mr. Cookson's illness, I lost several of my friends, relatives and patients, who would, in all probability, have recovered if so treated; and, among the rest, a gentleman the very week before the first trial I made of the practice in Mr. Cookson's case. I mention this fact as the strongest and most convincing proof that I had never even thought of this method until Mr. Cookson's case occurred, for, had I done so, I would have surely been inexcusable in allowing my patients to perish without even trying its effects. But it is time to proceed to the cases themselves.

A case occurred very lately in the Meath Hospital, where its progress was anxiously watched by many students and several practitioners, all of whom concurred in the opinion that the patient must have died had he been treated according to the plan usually followed under similar circumstances. This patient was attended, under my directions, by Mr. Harnett, who took the following notes of its progress, and visited the patient with unremitting attention both by day and by night.

Joseph Taylor, aged twenty-one, a strong young man of temperate habits, admitted into hospital on the 7th May, 1836. Ill seven days; sickness commenced with rigors, headache, pains in loins, &c. On admission he complained of headache, tinnitus aurium; face was flushed; eyes slightly suffused; was constantly frowning; skin hot and dry, slightly maculated; abdomen full and soft; bowels confined.

Habeat Haustum Rhei.

9th. Slept pretty well; raved little; ringing in ears continues; headache increased; eruption of the maculæ much more copious; slight cough; some bronchitic rales over both lungs; abdomen in every respect natural; bowels regular; pulse 100, distinctly dicrotous and sharp; tongue brown, dry, rough, and furred; had slight epistaxis three days ago.

R. Pilulæ Hydrargyri, gr. iij.

Pulveris Ipecacuanhæ, gr. ss.; Misce, fiat pilula, 4tis horis sumenda.

Applicentur hirudines duos naribus, et repetatur applicatio hirudinum vesperè, si opus sit.

Tenth day of fever. Slept tolerably well ; bled copiously from nares ; pain in head diminished ; countenance still flushed and hot ; temperature of rest of body lower than natural ; feet very cold ; pulse 112, dicrotous and wiry ; tongue parched and furred, dark brown ; great difficulty in protruding it.

Stupes to feet, blisters to præcordial region, blisters to calves of legs, in the course of the day.

R. Misturæ Camphoræ, f̄3j.
Liquoris Hoffmanni, f̄3j.
Misce, fiat haustus, 4tis horis sumendus.

11th. Became very violent yesterday evening ; attempted to get out of bed frequently, but, when spoken to by the nurse, he remained quiet for a short time ; was constantly raving and gnashing his teeth during the night ; had no sleep ; a short time before visit this morning, had a fit of an epileptic character, which lasted about ten minutes, in which he worked violently and foamed at the mouth. At the hour of visit, nine in the morning, the countenance was flushed, anxious, and expressive of great ferocity ; eyes wild and suffused ; pupils natural ; complains of dimness of vision ; eye-brows contracted ; breathing hurried ; is constantly tossing himself from one side of the bed to the other, and tearing the dressings off the blistered surface ; skin hot and dry ; abdomen soft ; no tympanitis ; bowels loose ; tongue parched and furred ; he is incessantly protruding and biting it, and gnashing his teeth ; pulse dicrotous, very quick, and sometimes hard, but small.

R. Antimonii Tartarizati, gr. vj.
Aquæ, f̄3x.
Mucilaginis,
Syrupi Papaveris albi, āā. f̄3j. ; Misce, fiat mistura, sumat f̄3ss. omni semihorâ.

Three o'clock, p. m. Has taken half the mixture, was nauseated by the second dose, but not since ; he still continues very violent ; fancies he has a bone in his mouth which he is constantly biting ; is in a copious perspiration since he commenced taking the medicine.

Mr. Harnett ordered ̄3j. of the mixture every half hour.

Six o'clock, a. m. Appears a little calmer ; has taken the whole of the medicine, no nausea produced ; has bitten his tongue and lip severely ; perspiration continues ; has passed a large quantity of urine in bed ; pulse soft and full.

R. Antimonii Tartarizati, gr. iij.
Aquæ, f̄3vss.
Syrupi simplicis, f̄3ss. ; Misce, fiat mistura, cujus sumat f̄3ss. omni semihorâ.

Eleven o'clock, p. m. Has taken all his medicine without being nauseated ; countenance less flushed ; is constantly raving ; pulse 100, full and soft.

R. Antimonii Tartarizati, gr. iv.
Misturæ Camphoræ, f̄3viij.
Tincturæ Opii, f̄3j. ; Misce, fiat mistura, cujus capiat f̄3ss. omni semihorâ.

12th. Continued raving during the night ; had no sleep ; appears much quieter this morning ; face less flushed ; eyes still wild and staring, but very

slightly suffused ; brows contracted ; pupils natural ; speaks rationally ; pulse 80 and regular, has lost the dicrotous tone which it had yesterday ; bowels confined.

Habeat enema emolliens, et repetatur mistura ;
To have one pint of porter and chicken broth.

Three o'clock, p. m. Having taken the whole of the mixture, containing tartar emetic and opium, the simple tartar emetic mixture was again prescribed ; after taking two doses of which he fell into a tranquil sleep, in which he is at present.

Eight o'clock, p. m. Has slept continually all day ; awakes occasionally, but falls into a deep sleep very soon again.

Omittatur tinctura opii.

13th. Slept soundly during the night ; appears calm and collected ; conversation quite rational ; maculæ have disappeared ; pulse 84, soft and regular ; omit medicine ; a glass of porter ; light nourishment.

He has taken more than twenty grains of tartar emetic within thirty hours, and has been nauseated but *once*.

There are some circumstances in this case which require to be considered more at length. In the first place, it is well to bear in mind that the patient was affected with genuine maculated fever, the true typhus, in the form many years present in Great Britain and in Paris ; for in the latter city this peculiar eruption, somewhat resembling measles in the crescentic shape of the blotches, is considered quite pathognomic of typhus. This is important, particularly with reference to the use of tartar emetic in such large quantities. Again it is worthy of remark that symptoms of collapse, so alarming as to excite considerable apprehensions, and calling for the immediate application of blisters, and the use of stimulants, occurred on the tenth day of the fever. It was immediately after this collapse that the violent cerebral excitement commenced, and certainly this previous collapse left an impression on my mind that no directly evacuating remedies could be borne ; that they would at least be attended by great danger of speedily reproducing a fatal degree of debility. For this reason I did not repeat the application of leeches.

The delirium in this patient was extremely violent, requiring the use of the strait waistcoat, and the constant superintendence of the nurse : the contortions of face, and the ferocity of his countenance, the constant biting of his tongue and lips, presented a frightful picture of excitement, which evidently could not be controlled except by the prompt and energetic use of powerful remedies. As the blistered surface of his chest seemed to add much to the state of excitement, for he was constantly tearing it, I did not think of applying blisters to the head, being persuaded that they might aggravate the evil, since in many they seem to act so as to produce a sort of *delirium traumaticum*. His pulse being frequent and sharp, together with the evident determination to the brain, seemed to indicate the exhibition of tartar emetic, nor was there any thing in the state of the intestinal canal to forbid its being given in frequently repeated doses. The result more than realised our expectations, for during its use the delirium gradually abated, and the pulse, becoming much less frequent, changed its character from a short and small, to a full soft stroke. This prepared the way for the safe trial of opium, which was not commenced until he had taken twelve grains of the tartar emetic. The opium was after-

wards laid aside, and the tartar emetic alone completed the cure ; but it may be doubted whether alone it would not have induced sleep.

I have made these remarks for the purpose of rectifying an erroneous impression, which I fear has gone abroad concerning the use of tartar emetic and opium in the delirium of fever, and to prevent, as far as I can, the exhibition of opium, except when certain precautions have been taken by the practitioner to remove or diminish cerebral congestion by means of proper evacuations or tartar emetic. No man can justly be held responsible for the abuse by others of remedies he recommends ; but since the publication of my observations on this subject, I have had lamentable proofs that I have been misunderstood ; and lately was called to see a gentleman in the vicinity of Dublin, who, the practitioner in attendance said, had been treated according to my method ; whereas the patient was killed, according to his own, by opium injudiciously given during delirium with evident cerebral congestion.

It has been asserted, that after all this case was not so dangerous, nor its recovery very remarkable. For a full refutation of so groundless an opinion, I refer with confidence to the written history of the case itself, a history which is far from laying before you an adequate picture of the deplorable state of the patient at the time that my treatment was about to be commenced, but which, nevertheless, is still faithful enough to convince every one at all acquainted with the symptoms and progress of fever, that the case was almost hopeless. What ! is it possible that any one can be found, who has witnessed fifty cases of bad fever, and who is bold enough to say, that because the patient is young, and was previously healthy, he could not be considered in imminent danger, when on the tenth day of spotted fever, a state of collapse requiring blisters and stimulants is followed on the eleventh day by delirium of the most violent description, rendering it necessary to tie the patient down in bed, and accompanied by a fit of convulsions of frightful violence, lasting more than ten minutes, and resembling an epileptic seizure ?

This last symptom alone is more than enough to denote extreme danger. For the truth of this assertion I appeal to my own experience, to the experience of every practical man, and to the writings of every author who has written on fever. Hippocrates has four aphorisms, all testifying the danger of convulsions in fever ; and in his book of prognostics, he says, that various causes may, in fever, produce convulsions in children under seven years of age, without great danger to life ; but he adds with great emphasis, in adults, convulsions never take place unless “ *τι των σημειων προσγενηται των ισχυροτατων τε και κακιστων.*” It is scarcely possible to describe the danger of any thing in stronger terms than these.

Those who assert that the possession of previous good health, or of a robust frame, renders violent fevers less dangerous, know little of the matter. The strongest and most powerful men I ever knew were Dr. Clarke, Jun., and Dr. Duigenan ; they both died before the end of the third day !

I cannot pass over in silence the remark, that my cases only prove how much the powers of nature are able to bear, an observation involving the insinuation that I was very culpable in giving such an example to others, and in countenancing the exhibition of strong medicines, such as tartar emetic, in unwarrantably large doses. Now with all due deference, I may be permitted to observe, that in acute diseases threatening immediate danger to life, we gain little by waiting for Nature's assistance. Powerful remedies must be employed ; but mark, if they are employed judiciously, *their powers are only exerted in controlling the disease* ; this happened in all the cases I have related ;

none of the patients were injured in any way ; in truth the physician who orders one-fourth or one-half of a grain of tartar emetic to be given repeatedly until the disease yields, and who diminishes the frequency of the dose and quantity of the medicine, in proportion to the diminution of the symptoms, to curb which was his object, that physician cannot be justly accused of giving heroically large doses of the medicine in question. To give it in smaller and less frequently repeated doses than are found sufficient to make an impression on the symptoms, would be mere trifling. The doses of medicines must be pronounced to be large or small, not according to their weight or measure, but according to their effects, and when confessedly moderate doses are frequently given, and the effects of each carefully watched, surely caution herself can require no more. The same remark applies to my directions concerning opium.

The next case I have peculiar satisfaction in laying before you, inasmuch as its progress and treatment were witnessed by Sir. P. Crampton, who was struck by the benefit resulting from a mode of practice he had never before seen applied, and that, under circumstances which he considered as indicative of the greatest danger. Dr. Campbell, too, had an opportunity of witnessing for the first time this mode of treatment, and he since assured his class, that when I recommended it, he had scarcely a hope that our patient's life could be saved.

Mr. C., residing in Fitzwilliam-square, a surgeon, formerly an apprentice of the Surgeon-General, a young man of a powerfully athletic make, was attacked with the rigor of fever on Monday, 9th May, 1836. He was attended from the commencement by Dr. Campbell, and had a copious eruption of measles-like maculæ on the sixth day of the fever, when I first saw him. No unusual symptom occurred on the seventh day, and the headache, of which he complained much at the commencement, had disappeared in consequence of the application of a few leeches. On the morning of the eighth day we observed that every now and then he respired irregularly, as if repeatedly and gently sighing, a variety of respiration often indicating a disturbance of the nervous system, and which I have repeatedly observed as a precursor of cerebral excitement, and to which, consequently, I have been in the habit of drawing your attention, under the name of cerebral respiration.

On the afternoon of the eighth day we had the benefit of Sir P. Crampton's advice, who thought his case a very bad one indeed, for his pulse was almost 140 in a minute, and remarkably shabby, while he lay on his back thickly covered with maculæ; and we found that a rapid tumefaction of the abdomen had commenced within a few hours—a very bad symptom, inasmuch as the belly had been in the morning quite soft and fallen, and there was no cause to account for the sudden development of tympanitis, unless we supposed it, as it too frequently is, a harbinger of dissolution at no very distant period. His tongue was parched, and he complained of thirst. The usual treatment by means of chloride of soda was determined on, in consultation; after which Sir P. Crampton expressed to the gentleman's friends the fears he entertained for the result. Scarcely had he gone out of the house, and just as Dr. Campbell and I were preparing to leave it, when a sudden change took place in our patient, who jumped out of bed, and nearly succeeded in throwing himself out of a garret-window. We found him violently delirious; but this state did not last for more than a few minutes, when it subsided into a delirium of a comparatively gentler description. He refused, however, to return to bed, and we were obliged to allow him to walk about in his shirt, supported, for

he was feeble, by two attendants; his eyes became at times very prominent and ferocious; now and then he threatened all those about him, in a loud and terrifying tone of voice, and he seemed every moment on the border of frantic madness. Nothing could induce him to go to bed, or allow even a blanket to be thrown over his cold and naked extremities. Thus seated on his chair, he presented a frightful picture, while his pulse became so quick that it could scarcely be counted, and was at the same time exceedingly weak.

What was to be done? The state of his circulation did not admit our endeavouring to control the cerebral excitement by arteriotomy or even leeches, and the last remark Sir P. Crampton made, was, that a very few leeches would kill him; blisters would be too slow in their action, and might even aggravate the disease; cold effusion seemed inadmissible. In short, it seemed that our patient was beyond the reach of all resources; as to tartar emetic, I felt at first unwilling to order it on my own responsibility, in a case apparently so desperate, and after Sir P. Crampton had left the house; in fact neither Dr. Campbell nor I thought it probable that our patient would survive twelve hours: yet, as I saw no possible means of saving him but the tartar emetic treatment, and determined at all risks to make a strenuous effort, I did not think myself justified in any longer hesitating about the matter, and ordered a mixture containing one ounce of syrup of white poppies, one of mucilage, and six of water, with eight grains of tartar emetic. Of this solution he was to get half an ounce every half hour, until a manifest impression on the cerebral excitement was produced.

The medicine was administered by the late Mr. Ferguson of Kildare-street, who told me afterwards that he was quite surprised at the treatment adopted, and was sure that neither it nor any other could save Mr. C.'s life. The first six doses seemed to sicken him a little, but he did not vomit until after the seventh dose; the eighth also produced very copious vomiting of mucous and bilious fluid. After the second vomiting he was prevailed on to go to bed, and was evidently more tranquil, but from having remained up uncovered for so many hours, much trouble was necessary before warm applications succeeded in restoring the natural temperature of his limbs and skin generally.

At 10 p.m. we saw him again, and finding that the medicine had produced so powerful an effect, we ordered it to be repeated only every second hour.

May 18th.—Ninth day of fever: 8 a.m. Has taken five doses since last visit; stomach quiet since the eighth dose. He slept several hours quietly in the beginning of the night (he had not slept for several nights before), but seems more excited now; he threatens some of his attendants, and appears likely to be unruly. It was therefore judged right to repeat the medicine every hour and a half.

1 p.m. Has taken eight grains of tartar emetic since six o'clock yesterday evening. A solution of the same strength in plain water was now directed to be given in the dose of half an ounce every fourth hour. He slept a good deal during the day, and the medicine operated on the bowels, bringing down very large fluid stools, consisting of a great quantity of healthy yellow fecal matter. This effect is often produced by the tartar emetic in the advanced stages of fever, and is always a good sign. Although he was evidently more tranquil than before, it was thought advisable still to keep two strong steady men constantly in the room, ready to assist the nurse in case of emergency. He still raved occasionally, and would not allow certain persons, me among the rest, to approach him, having conceived a strong aversion for us.

At 7 p. m. we found that the fever was again rising, and that the cerebral excitement was on the increase; we therefore again had recourse to half-hour doses, until the excitement yielded; after which it was given only every second hour.

May 19.—Tenth day of fever: 10 a. m. He took six doses during the night. He got out of bed and eluded the vigilance of his attendants at a very early hour in the morning, but walked peaceably about the house, and when asked, returned quietly to bed. He slept well afterwards. As so much had been gained, we thought it unnecessary to persevere in the use of the tartar emetic; it was discontinued. He took in all twelve grains; it diminished the frequency of the pulse notably; and, what was very striking during the forty-eight hours we employed it, the pulse not only became slower, but much softer and much fuller; the skin became softer and moist; the belly was fallen and soft; and the maculæ much diminished. His fever, notwithstanding, still continued; he spoke incoherently, but did not again get out of bed.

On the fourteenth day an evident abatement of general fever commenced; the pulse fell, and the respiration, which, when he was at the worst, had been about fifty in a minute, fell to twenty-five. This improvement continued progressive, and on the seventh day precisely, all fever left him; his pulse being then 60.

The after treatment consisted merely in giving a mild aperient every second day, until convalescence commenced. After the use of the tartar emetic had cured the cerebral excitement, he slept almost continually until the termination of the fever.

The next case is that of Mr. M., a gentleman of sedentary habits, full and corpulent, 40 years of age, who was lately attacked with violent symptoms of fever. He was very actively and judiciously treated by Dr. Ireland from the commencement. The measles-like eruption appeared about the fifth day. He had been copiously bled from the arm twice, and leeches were repeatedly applied to the forehead for the purpose of relieving pain in the head. He was likewise very freely purged. About the time the eruption appeared, his restlessness and debility increased, and he scarcely slept at night. In the course of a few days his state had become very alarming, and I saw him, in consultation with Dr. Ireland, on the ninth day of his fever.

We found that he had raved constantly during the preceding night, and was bathed in an exhausting perspiration, while the pulse rose to about 130; his perspiration was very frequent, and his face wore an evident expression of excitement, not of a violent, but of a very restless character. His tongue was parched, and his body thickly covered with maculæ. In short, notwithstanding the active measures of depletion, general and local, applied in the beginning of the disease, it was evident that cerebral excitement had come on, and that too at a period of fever when debility forms a considerable obstacle to the further use of direct evacuants. His exceedingly gross habit of body, and prominent abdomen, were concomitants of the worst omen, for it is well known that very fat people seldom recover from typhus of a bad character. In this state of things tartar emetic was given to about the extent of three grains in the twenty-four hours; it was continued forty-eight hours, or until a satisfactory calm of the nervous system had been produced. Besides diminishing the delirium and inducing sleep, the remedy here brought away numerous and copious bilious stools, and diminished notably the frequency of the pulse and of the respiration. It is worthy of remark also, that, in proportion as he came under the influence of the tartar emetic, the useless and profuse perspiration began to abate, and after some hours ceased.

This gentleman's life was evidently saved by the treatment, for though his fever continued many days after, yet he never was in danger except from hiccup, which came on about the thirteenth day, and tormented him day and night. Claret, iced, seemed to have more power in relieving this symptom than any other expedient resorted to. His fever terminated about the nineteenth day.

Dr. Ireland, who has had the most extensive experience in fever, testified the pleasure he felt at witnessing the good effects of a mode of cure to him quite new, and applied in a case he thought almost desperate.

The following case presents so striking and convincing an illustration of the efficacy of my treatment, that I have thought it right to lay it before you also. The progress of the case was witnessed by several practitioners, who all declared, and I myself concurred in this opinion, that nothing would save the patient's life. His recovery was, without exaggeration, a matter of astonishment to us all; while at the same time it was so evidently the effect of the remedies employed, that many who had been wavering in their minds as to the utility of tartar emetic exhibited in the advanced stages of spotted fever, could no longer refuse their assent, and unhesitatingly declared their conviction that by no other plan of treatment could a favourable issue have been brought about. The patient was most diligently watched by Mr. Rooney, an attentive pupil, who visited him many times during the day and night, and reported to me the effect of the medicines.

Edward Meylagh, a stout, muscular peasant, aged 25, was attacked about the 23rd May, 1836, with the usual symptoms of commencing typhus. He was admitted into the Meath Hospital on the 1st of June, after the usual hour of visiting the wards. It was ascertained that he had been repeatedly and violently purged since the commencement of his illness by pills and aperient mixtures. I saw him at 9 a.m. on the 2nd of June: he had passed a most restless night, muttering incessantly, and becoming at times so unmanageable, that it was necessary to put on the strait-waistcoat. Now he is obstinately silent, will not answer questions, or put out his tongue when desired. His countenance is at once morose and haggard, and at times assumes a suspicious, ferocious aspect; eyes glazed, and slightly suffused; general surface of skin rather dry and hot, but his extremities are cold and livid; pulse 132, small and compressed; respirations 42, irregular; abdomen neither swollen nor tender; he passes urine and fæces in bed; his tongue is dry, and dark-brown in centre, moist and red towards the edges. The whole surface of his body is covered with maculæ. Immediate attention was paid to restore the warmth of the extremities, and I directed him to get every hour half an ounce of a mixture, consisting of eight ounces of water, four grains of tartar emetic, and two scruples of laudanum.

1 p.m. At mid-day he began to gnash his teeth, knit his brows, screw his lips, and spit at every person that approached his bed. The expression of the face was rendered worse by the rapid motions of the eyeballs and a frequent squinting. In fact he became so ungovernable that the restraint of a strait-waistcoat was no longer sufficient, and his legs and thighs were tied down to the bed. His carotids pulsated violently, and he alternately laughed and screamed aloud. Pulse 132, still small and wiry. As no perceptible action had been produced by the medicine, it was ordered in double doses.

6 p.m. Countenance much improved; less morose; he continues, however, to speak unconnectedly, but jocularly; is in a copious warm perspiration: pulse 120, soft and compressible; respirations 36, regular. To continue the double doses.

9 p.m. Has been in a composed tranquil sleep since half-past six o'clock ; perspiration continues ; has passed a large quantity of urine ; extremities are now naturally warm and moist ; the pulsation of the carotids has subsided. He has taken four grains and a half of tartar emetic since morning, and twenty-three drops of laudanum. The medicine was now directed not to be given at regular intervals as before, but according as the symptoms seem to require it ; it had neither nauseated nor purged him.

3rd June. He has slept tolerably during the night, and got three doses of the bottle. About five in the morning he became somewhat restless, when a double dose was immediately administered, after which he slept composedly until nine o'clock, the hour of visit. His tongue is red, dry, and parched, fissured towards the tip ; his thirst is increased, and he drinks very freely of cold water ; skin moist and warm ; pulse 96, dicrotous ; respirations 30, regular ; he seems inclined to sleep. His ideas are somewhat confused, although he answers rationally ; bowels confined ; abdomen a little tumid and slightly tympanitic. Has taken two grains and a half of tartar emetic and ten drops of laudanum since yesterday evening. I now thought it unnecessary to persevere any longer in the use of this mixture, and directed my attention to the state of the bowels, which soon yielded to emollient lavements. The alvine evacuations so procured were very copious, and were followed by immediate subsidence of the belly, and evident amelioration of the symptoms. He continued to sleep quietly during the day ; at six in the evening his pulse was 90, soft and natural ; respirations 30 ; skin warm and perspiring ; maculæ have nearly disappeared.

7th June. Much natural sleep ; pulse 65, soft, of good strength, and without any of the dicrotous character ; intellectual faculties rapidly improving ; now passes urine and faeces voluntarily ; abdomen soft and fallen ; tongue cleaning, and nearly moist. In fact, convalescence has almost commenced.

With one case more I shall conclude. A gentleman about 20 years of age was attacked with measles of an irregular form. The eruption did not come out favourably ; and notwithstanding he was treated from the beginning by the late Dr. O'Brien, so well known as an excellent writer on the subject of fever, his state became daily worse, and Dr. O'Brien pronounced his case hopeless when he sent for me on the sixth day. It must be borne in mind that Dr. O'Brien was physician to the Cork-street Fever Hospital for thirty years.

The combination of symptoms which caused him to form this unfavourable opinion, was an exceedingly rapid, shabby pulse, violent delirium, total sleeplessness, and an evident sinking of the vital powers, manifested by coldness of the skin, &c. &c. As he was young, and the disease recent, we ventured to draw a little blood from the arm, but he fainted before many ounces could be obtained ; we leeches his forehead without any perceptible effect. On the morrow he was worse : I then proposed the exhibition of small doses of tartar emetic, in frequently repeated doses. He took two grains in the course of ten hours ; was nauseated or vomited by almost every dose ; became more tranquil ; finally fell asleep ; and in twenty-four hours was out of danger.

Dr. O'Brien expressed to me in the strongest terms his gratification and surprise at the striking and beneficial application of a medicine he had never before seen given in like circumstances.

Another case of spotted fever, to which I was called by Mr. McNulty of

Britain-street, afforded an equally favourable result within this last week; as did also a very dangerous case of the same disease, which I treated along with Mr. Mulock.

I have thus fully brought forward the result of my experience on this subject, convinced that I have not deviated in the slightest degree from the strict and naked truth in any of the preceding details. I have not in a single instance related what was not witnessed by other medical men of judgment, well known to the profession. If my treatment be not useful, it has singularly deceived me in curing my patients. If it be not new, it is strange that so many others in Dublin, that the whole body of practitioners, should have been fully as ignorant of it as I was myself.

I need scarcely again observe, that the proportions of the two powerful medicines which compose this mixture must vary according to the circumstances of the disease, and the age of the patient. In young persons of tender age, the opium must be given in smaller quantities.

Before concluding I may mention that since this practice was first proposed, it has continued to afford me the greatest satisfaction, and that I have reason to believe that those who have employed it in this country, and at the other side of the channel, have had no reason to lose confidence in it.

In a paper on typhus fever by Dr. Kilgour, we find that the experience of Dr. Dyce, of the Aberdeen Infirmary, is strongly in favour of this practice. He says:—"For months together the pulmonic symptoms prevailed almost entirely, then came those marked by gastric and intestinal irritation, and less often, though still continuing for a length of time in succession, those with high cerebral action. The first set, as is too well known, were by far the most intractable and fatal; the last, though sufficiently alarming, and always requiring restraint, were more amenable to treatment than either of the others, if anticipated in their approach, or seen soon after their onset. By the way, the medicine I *solely* relied on in this latter class, you do not include among your list—I mean tartar emetic. Given as described by Dr. Graves, I have found it eminently successful, and have the greatest confidence in it."—*Edinburgh Medical and Surgical Journal*, vol. lvi. p. 389.

And in the eleventh volume of the *Dublin Medical Journal*, you will find an interesting paper on "Certain Remedies in Typhus Fever," by Dr. Hudson of Navan. Speaking of the treatment by tartar emetic and opium, he says:—"It seems best adapted to that restless kind of delirium tremens, in which the patient cannot be restrained from attempting to leave his bed, and walk about the ward; when every muscle is tremulous, the eye is red from want of sleep, the tongue dry, and the patient presenting that kind of spurious excitement which might induce the attendant (injudiciously, no doubt) to order the local abstraction of blood, by leeching the temples, or opening the temporal artery. I could here give reports from my note-book of several cases thus treated, but that I consider it would be rendering tedious a paper already too long. In prescribing this medicine, I find it advisable to use great caution in two ways: 1st, Not to give it *after* it has produced sleep; 2nd, To follow it up by the prompt and frequent exhibition of wine, and such nourishment or cordials as the more or less advanced stage of the disease and debility of the patient may require, as it seems to me that there is increased risk of the patient sinking unless timely supported after sleep thus induced."

To conclude, I must observe that I by no means wish to recommend tartar

emetic as a specific in fever. I only use it in the complication above described. In fever the physician must use an almost endless variety of treatment according to the circumstances of the individual case before him ; and he only will be successful who watches narrowly the progress of the cases intrusted to his care, and applies the appropriate remedies at the proper moment. Bleeding, leeches, purgatives, mercurials, absorbents, acids, stimulants, tonics, blisters, chloride of soda, may each be necessary in the treatment of different cases at different stages of their progress, or in different types. In fine, the treatment of fever will be always difficult, always complex, but it ought to be successful.

LECTURE XIX.

THE ADMINISTRATION OF WINE IN FEVER.—SEQUELÆ OF FEVER.

I CANNOT conclude the remarks I have to make on different points connected with the treatment of fever, without directing your attention, in an especial manner, to the *phenomena of the heart's action as an index for the administration of wine*. In the fifteenth volume of the first series of the *Dublin Medical Journal* you will find a paper on this subject from the pen of my distinguished colleague Dr. Stokes. From numerous observations he concludes that certain phenomena, which I shall presently detail, indicate a *softened* state of the heart, and that as soon as these phenomena present themselves, we should resort to stimulation by wine, &c. Dr. Stokes is of opinion that the pulse is a fallacious guide in fever, and that our attention should always be directed to the impulse and sounds of the heart for guidance either for the administration or withholding of stimulants, and he then details the peculiar characters by which this weakened condition may be recognised. I shall now read from Dr. Stokes's paper the leading doctrines contained in it:—

“We may thus arrange the cardiac phenomena obtained in our typhus fever:—

“1. Impulse and sounds remaining unaltered; the action of the heart corresponding with that of the pulse.

“2. Vigorous impulse, with distinct and proportionate sounds, with absence of pulse for many days.

“3. Diminution of both sounds of the heart, with absence or great diminution of the impulse (fœtal character).

“4. Diminution of the first sound, with cessation or great feebleness of the impulse.

“5. Complete extinction of the first sound, the second remaining clear.

“6. Predominance of the first sound, the second being extremely feeble.

“In the great majority of cases, however, the following were the phenomena observed:—

“1. Diminished impulse.

“2. Diminished first sound, particularly of the left cavities.

“With respect to the impulse, we arrived at some unexpected results. In most cases, considered through the whole progress, the diminution and return of the first sound were accompanied with the diminution and return of the impulse. So far the phenomena were what we might expect. *But in some instances, at particular periods of the case, this accordance between the impulse and sound did not exist.* In one case, the sounds became distinct before the impulse returned. In another the impulse became distinct on the eleventh day, while the second sound greatly preponderated. In a third case, we found that on the eighth day the sounds were not in proportion to the impulse; and on the tenth the impulse continued, but the first sound was totally absent. On the next day no impulse could be felt, yet the first sound was

feebly audible. In the fourth case, the impulse on the twelfth day was less perceptible than on the day previous, but the first sound had more strength."

Dr. Stokes adds,—“It is difficult or impossible, in the present stage of the inquiry, to offer any satisfactory explanation of these apparent anomalies; but it seems certain that, under the influence of the typhoid condition, the heart may have sufficient force to give an impulse with little or no sound, on the one hand; and on the other, its contractions may be accompanied by a sound, although the impulse be absent. Whether we are to explain these facts by referring to particular states of innervation of the heart, or to organic alteration of the muscular fibres or their connecting cellular membrane, is still to be determined.”

Farther on Dr. Stokes says,—“That the cause of the want of impulse, and feebleness or cessation of the first sound, is a *softening* of the heart, I have no doubt. The evidence in favour of this opinion may be thus stated:—

“1. That softening of the heart exists in typhus fever, as a local disease, and without any analogous condition of the muscles of voluntary life.

“2. That in our dissections in the last epidemic, we met with this softening of the heart in cases which during life had presented the phenomena in question.

“3. That the physical signs indicate a debility of the left ventricle principally, and it is this portion of the organ which is most often altered in consistence.

“IV. Laennec has stated that, in proportion to the severity of the putrescent phenomena is the liability to softening of the heart; and the same observation is found to be true of the physical signs now described.

“The average period when these phenomena appear is about the sixth day, and they cease about the fourteenth day.”

Dr. Stokes considers it highly probable that this softened state of the heart depends on an infiltration through its muscular structure of a peculiar secretion, identical with, or closely resembling that mentioned by Dr. Stableroh as occurring on the surface of the intestinal mucous membrane in cases of follicular ulceration.

“This, occurring in the heart, seems to impair its functions to a great degree; but the rapid restoration of the heart to health points out that the disease has not materially impaired its organic condition.

“Finally, says Dr. S. “I would draw the particular attention of my readers to the fact that, in the great majority of these cases, the use of wine was followed by the happiest effects. I may safely refer to the cases in proof of this proposition, *and I believe that in the diminished impulse, and in the feebleness or extinction of the first sound, we have a new, direct, and important indication for the use of wine in typhus fever.*”

I will now read the conclusions at which Dr. Stokes has arrived:—

“I. That the condition of the heart in typhus fever must be determined by the application of the hand and stethoscope, the pulse being an uncertain guide.

“II. That a diminished impulse, or a complete absence of impulse occurs in certain cases of typhus fever.

“III. That in such cases we may observe a diminished first sound, or even an absence of the first sound.

“IV. That both these characters may exist with a distinct pulse.

“V. That although in most cases the diminution of the impulse and first sound co-exists, yet that impulse may exist without corresponding first sound,

and conversely, that the first sound may be heard although unaccompanied by impulse.

"VI. That these phenomena are most evident as connected with the left side of the heart.

"VII. That when the impulse or first sound are lessened or lost, the return to the healthy character is observed first over the right cavities.

"VIII. That in some cases both sounds are equally diminished.

"IX. That in a few cases the first sound preponderates.

"X. That these phenomena indicate a debilitated state of the heart.

"XI. That they may occur at an early period of the disease, and thus enable us accordingly to anticipate the symptoms of general debility.

"XII. That the existence of these phenomena, in a case of maculated adynamic fever, may be considered as pointing out a softened state of the heart.

"XIII. That this softening of the heart seems to be one of the local lesions of typhus.

"XIV. That the diminution or cessation of impulse, the proportionate diminution of both sounds, or the preponderance of the second sound, are direct and nearly certain indications for the use of wine in fever."

Though these doctrines are entirely new, and may appear to some rather fanciful, yet for their general accuracy I can vouch. I cannot agree, however, with Dr. Stokes, in attributing the phenomena of a *debilitated* heart to a *softening* of that organ, much less to the interstitial infiltration of a peculiar secretion analogous to that which Staberoh states he has observed on the mucous surface of the intestines in dothionenterite. On the contrary, I consider the heart, in typhus fever, to be affected with debility from the same cause which induces a debility of the voluntary muscles, and of the bladder and sphincter ani,—that cause is a general prostration of nervous energy. That Dr. Stokes has seen the heart softened in the examination of subjects that had been affected with typhus fever, I have no doubt; but I would impute this condition to the effect of putrescence, a process which it is well known sets in with great rapidity in cases where death has been caused by any malignant disease. It seems difficult to conceive how the heart could contract in a case where "the right cavities were softer than natural, admitting the fingers through their walls without much resistance; and in which, in the muscular structure of the left cavities, this change was much more remarkable, the weight of the finger being almost sufficient to penetrate its walls, they were so exceedingly softened; it was very easily torn, and the edges thus separated had no longer the moistened appearance, but seemed as if quite dry. The septum cordis was equally softened; there was some dark fluid blood in the right cavities."

But the fact cannot be denied, that in many cases of typhus the heart becomes weak, that this weakness is manifested by a decrease in the strength of its impulse, or in the intensity of its sounds, or a change in their relative loudness and duration—and though I have never witnessed these changes without accompanying debility of the entire muscular system, and other evidences of prostration, yet I fully agree with Dr. Stokes, "*that in the diminished impulse, and in the feebleness or extinction of the first sound, we have a new, direct, and important indication for the use of wine in typhus fever,*" and one from which the junior practitioner in particular will derive the greatest assistance.

But I also agree with Dr. Bell, the distinguished American editor of Dr.

Stokes's Lectures, that, "important as is the guide thus furnished by the state of the heart for the use of stimulants, it may not be in the power of all, without some experience, to avail themselves of it. The practitioner will, therefore, do well to attend to the following points, as directed by Dr. Armstrong, in forming his opinion of the propriety of persevering in the administration of wine to a patient in typhus fever:—

"1. If the tongue become more dry and baked, it generally does more harm ; if it become moist, it does good.

"2. If the pulse become quicker, it does harm ; if it be rendered slower, it does good.

"3. If the skin become hot and parched, it does harm ; if it become more comfortably moist, it does good.

"4. If the breathing become more hurried, it does harm ; if it become more deep and slow, it does good.

"5. If the patient become more and more restless, it does harm ; if he become more and more tranquil, it does good."

I have long endeavoured to impress on the minds of students the great importance of studying with attention that stage of fever in which wine and opium are occasionally the best remedies, with a view of learning what symptoms indicate their exhibition. In the commencement of fever, we can decide with a good deal of certainty upon the most proper course of proceeding, but, as the disease advances, the symptoms become more complicated, the indications more confused, and the plan of-treatment consequently doubtful. In this stage of fever it is that we must rely on the tact acquired by previous experience and reflection, and must often depend more upon a correct estimation of the general state of the patient, than upon the appearance or absence of any particular symptom. It is not my intention at present to do more than prove the truth of this assertion, by showing that the presence of some symptoms, commonly supposed to contra-indicate the exhibition of wine and opium, ought not to deter the practitioner from their use, provided that other circumstances seem urgently to require it.

1st. In the first place, as to the tongue, *at an advanced period* of fever I have often derived the greatest advantage from wine and opium, although the tongue was dry, the colour of old mahogany, or else coated with a yellowish brown fur, and protruded with difficulty, while the teeth and gums were covered with sordes. Wine and porter in moderate quantities seem *generally* to agree better with this tongue than opium ; in some cases, however, the latter is indispensable.

For fear of misleading you, I must again remark, I by no means wish to assert that such a tongue uniformly, or even frequently, indicates the use of these medicines ; on the contrary, this state of tongue and mouth will often be observed at a time when leeches and antiphlogistic treatment are required. Let it be clearly understood, however, that, at an advanced period of fever, this state of the tongue may exist, and yet wine and opium may be given boldly, provided, as I have said before, the general state of the patient seems to require it.

2ndly. The observations I have made concerning the tongue are applicable to *suffusion of the eyes*. The eyes may be heavy, a little red, very much suffused, and may have the singular expression of watchfulness, combined with great redness of the conjunctiva, which is termed a ferrety eye, and yet wine or opium may be the only remedy capable of saving the patient's life. It should always be borne in mind that the want of sleep tends to make the eye

red, and that this condition is often, when it occurs in maculated typhus, analogous to the similar appearance of the eye which is observed both in measles and scarlatina, in which diseases it is merely a part of the general erythema, and does not contra-indicate the use of wine and opium if other circumstances call for their exhibition.

3rdly. A hot and dry skin does not necessarily contra-indicate the exhibition of wine and opium, particularly where there is at the same time a tendency to coldness of the extremities.

4thly. The presence or absence of delirium must always excite our attention when the question of giving wine or opium arises. I believe that these medicines are never applicable when the delirium is violent and continuous, but the patient may rave a great deal, particularly at night; he may mutter and speak to himself; he may point to various imaginary appearances, and may fancy himself surrounded by persons or things which have no real existence; he may be restless and irritable, constantly endeavouring to leave his bed for the purpose of walking about the room, or sitting at the fire; and yet he may be in a state urgently demanding wine and opium. On a more accurate examination, we find that his delusions are not so strong as to leave no room for the exercise of his reason. When spoken to emphatically, he answers in some cases incoherently, but in others with perfect precision and presence of mind, and does not for some minutes relapse into his former wanderings. This state of mind is usually accompanied by an almost total want of sleep, and, in many, by a great anxiety about their illness. To procure sleep, as has been well remarked by Latham, in a late number of the *Medical Gazette*, is here one great object, and this can only be done by means of wine and narcotics. In some the mental aberration is scarcely perceptible, and they have all the characters of great excitement of the nervous system, without any actual raving or delirium. There is general tremor and subsultus. The tongue is tremulous when protruded, or when moved in speaking, and consequently the articulation is uncertain and interrupted, while, in general manner and mode of answering questions, the patient strongly resembles a person affected with delirium tremens.* This group of symptoms is likewise accompanied by want of sleep, and best treated with wine and opium.

5thly. The appearance of the face has been much relied on by some, as capable of guiding us in forming our decision. Heat of head and face, redness of the cheeks, and strong pulsation of the carotids, are well known as contra-indicating wine or opium; but in the advanced stages of fever, the face, like the eye, may be suffused, it may be seen occasionally flushed, and when flushed, it may be hot, and yet wine and opium may, nevertheless, be our only resource.

6thly. Headache, when violent, is at any period of fever a decisive circumstance. Sleep cannot be obtained while the pain is unmitigated, and we must, therefore, attempt to conquer it by the most active treatment, by local applications to the head, by depletion from the vascular system, and by purgatives. Sometimes, however, these means fail, and the physician feels that he cannot pursue this mode of treatment any further. Under such circumstances, a dose of opium boldly exhibited will occasionally succeed in procuring sleep, from which the patient awakes nearly free from headache. Before having recourse to this remedy, the effects of a blister to the nape of the neck ought to be tried. In the more advanced stages of fever, the headache, or

* It is in these particular forms of fever that I have discovered the great utility of tartar emetic and opium; see last lecture.

rather the heaviness felt in the head, is something very different from the throbbing, acute headache just spoken of, and constitutes no contra-indication to the use of wine and opium.

7thly. The state of the pulse requires to be duly considered. Its frequency is not of much importance, for I have seen wine and opium prove highly serviceable in all its varieties, from 70 to 130, or even upwards. No one would ever think of exhibiting these remedies when the pulse is strong, and more particularly when it is strong and hard ; but the case is otherwise when it possesses only a certain degree of *hardness*, and is at the same time small and thrilling, not resisting compression with the force the sensation of its hardness leads us to expect.

Such are the chief observations I have made on the particular circumstances and symptoms supposed capable of throwing light on this important practical question. They may serve to prevent the student from being misled by rules of practice dogmatically deduced from the observations of any single symptom, and may lead him to turn his attention more accurately to the previous progress of the fever, and the general state of the patient. It is almost superfluous to add that, when any doubts exist concerning the propriety of giving wine and opium in fever, they should not be tried unless their effects be carefully watched by the physician himself.

Permit me next to call your attention to some of the sequelæ of fever, and first to some points connected with sudden and violent delirium succeeding maculated typhus fever. It may be doubted whether any writer has illustrated with sufficient details the fact that delirium of a most violent and dangerous description sometimes suddenly supervenes in patients who, to all appearance, have passed favourably through the various stages of maculated fever. I published on a former occasion the case of a student in Trinity College, who was thus attacked on the eighteenth day, at a time when he seemed to have passed the crisis favourably, his pulse having fallen to 60, and all other symptoms of fever having disappeared ; since that observation was made, I have seen so many cases of a similar description, that I think it right to impart whatever additional experience has taught me concerning the history and treatment of this singular species of delirium. It will appear evident, from the nature of the means successfully employed in treating this affection, that it has little or no affinity to the delirium which, in the first stages of fever, so often accompanies true inflammation or congestion of the brain, but is rather allied to delirium tremens, delirium traumaticum and acute puerperal madness. As in each of these the delirium is preceded by the operation of some cause, which acts unfavourably on the nervous system ; so in the delirium we are now about to consider, the pre-existence of fever may be assumed to act in a similar manner. Neither does maculated fever seem more inadequate to produce so serious an effect, than the act of parturition, the presence of a wound or fracture, or the long-continued abuse of intoxicating liquors ; for no severe typhus fever ever runs its course without bearing heavily on the nervous system. The facts I am to relate ought to make physicians extremely cautious about pronouncing fever patients out of danger ; for even after a crisis, occurring in due time, and apparently the most satisfactory and complete, delirium may suddenly arise, and may place the patient in the greatest peril, the physician having, perhaps, taken his leave, in the full assurance that his visits were no longer necessary.

Four years ago I attended, with the late Mr. King, a gentleman in Grafton-

street, who had fever without any remarkable symptom, or anything that required the adoption of active measures. He had maculæ, it is true, but the patient was young, and went through the disease favourably; on the sixteenth day his pulse had fallen to sixty, and all danger seemed over. He had no thirst; his tongue was moist; eyes clear; and not the slightest headache, or appearance of cerebral determination: in fact, when I visited him on the morning of the seventh day, every thing betokened a speedy recovery. I must observe, however, that in this, as well as in most cases of the kind I have witnessed, there was a certain degree of nervous excitement present, tending to produce want of sleep, and consequently on leaving him at my evening visit, I directed the nurse to give him an opiate draught. This was unfortunately omitted; the young gentleman became gradually more restless and agitated, began to rave, and was found by Mr. King, next morning, in a state of high delirium. His pulse was still rather slow, not more than sixty in a minute; his skin was cold; his countenance collapsed; and he had been during the night wholly sleepless. We had great difficulty in managing this patient; and it was only by means of great attention, stuping his legs, a nutritious diet, wine, and black drop, exhibited freely and repeatedly, that his life was saved.

Another case of the same kind, and calculated to excite great interest, was that of a pupil of the Meath Hospital. This gentleman was attacked with the prevailing fever, and like most patients, exhibited maculæ about the fifth day. There was, however, nothing very remarkable in his disease, no symptoms of anomalous character, or of a severity requiring very active measures. When first attacked, he felt rather nervous; but this was very little to be wondered at in a person who had been studying intensely for a considerable time.

At a very early period he exhibited a tendency to tremors and subsultus tendinum; but all his other symptoms were mild, and by strict attention, and the kind care of his fellow-students, he went through the disease favourably, and appeared quite free from danger on the sixteenth day. On the seventeenth day I found him, at my morning visit, in a very promising condition, his pulse down to 60; his tongue moist; his skin of a natural temperature; and his eye clear, and nothing present but a certain degree of nervous excitement. To counteract this tendency the late Dr. M'Dowel and I had found it necessary to give him every night an enema containing twenty-five drops of tincture of opium. Unfortunately this was omitted for one or two nights about this period. The fever resolved itself; but resolved itself during the period of sleeplessness, and a certain degree of nervous excitement. I saw him on the morning of the eighteenth; I thought there was a good deal of anxiety and quickness of manner about him, with some slight increase in the muscular tremors. I therefore wrote to Dr. M'Dowel, and begged him to see that he took his opiate that night. Before this was done, he grew much worse; in the evening he became highly excited, then quite delirious, and towards morning it was necessary to call in the assistance of three or four persons to keep him in bed. Dr. M'Dowel continued to attend him with great care and skill, and had sufficient influence over him to make him swallow the requisite medicines, which no one else could. Opiates were at first tried, but failed; we then commenced with the free exhibition of tartar emetic, and extract of belladonna; in the course of twenty-four hours he took five or six grains of the latter; we afterwards omitted the tartar emetic, and substituted black drop in its place: this succeeded, and after a violent

attack of delirium, which lasted for thirty-eight or forty hours, he fell into a deep sleep, from which he awoke refreshed and rational. It was necessary, however, to repeat the narcotics for several nights, and they were not omitted until his convalescence became so confirmed as to remove any apprehension of a relapse.

Here are two cases in which the disease declines, and the patient is regarded as nearly convalescent, when suddenly cerebral symptoms of a most alarming character manifest themselves. The fever subsides, but with nervous excitement and insomnia, circumstances which have been long observed as characteristic of an imperfect crisis. The point, however, to which I wish to direct attention is, that a person not thoroughly acquainted with the nature of this affection might be led into a very important error. He might, perhaps, suppose this to be inflammatory excitement, to be treated by leeches, cold to the head, and other antiphlogistic measures. In the first case, indeed, the symptoms were so violent that I advised leeching; but Dr. McDowell did not apply them, and perhaps it was well that he did not. I do not mean to say that leeches and the antiphlogistic treatment are never indicated in the delirium which occurs at an advanced period of maculated fever, or in that which follows the stage in which the pulse falls to the natural standard, and thirst ceases, and the skin grows cool. Such an assertion would lead, in some instances, to an injudicious and even dangerous method of treatment; for cases do occur where, under these circumstances, topical antiphlogistic measures are absolutely called for. My object in making these remarks is to point out, not the rule, but the exceptions, the numerous exceptions to the method of treatment usually employed. In the delirium I am now describing, the feet and legs must be constantly stuped, the head must be diligently spunged with warm water and vinegar, the bowels relieved by injections, while opium is exhibited by the mouth or in *lavements*; where there is warmth of the scalp, and the temporal arteries full, leeches are required, but where the scalp is not hotter than natural, they would prove hurtful; in a state of collapse, wine may be necessary; *blisters to the nape or head seem to increase the delirium*. When leeches are indicated, their good effects are much enhanced by combining tartar emetic with the opium, provided no diarrhoea or other symptom of abdominal irritation can be detected.

The next case is even more remarkable than the preceding, for the delirium came on quite suddenly and without any premonitory symptom, and did not commence for several days after the fever had entirely ceased, which it did about the seventeenth day; neither was the termination, in this instance, rendered suspicious by any previous want of sleep.

Mr. ——— was attended by Dr. Brereton, who found him labouring under the usual symptoms of fever, which commenced about the 27th of January, 1835. He was a young man of excellent constitution, and temperate, active habits: soon after the commencement of the disease, some bronchitic symptoms appeared, and at the usual time the maculated eruption was observed. Nothing remarkable occurred until towards the fourteenth day, when a notable and steady improvement commenced, and consequently I left off my attendance, having been called in about the seventh day of the disease. As the patient's constitution was sound, his friends were not likely to permit any error of diet, and I did not anticipate a relapse, especially as there had been no serious affection of the brain, chest, or bowels during the course of the fever. I left him cool, cheerful, and self-possessed, his pulse regular, about sixty in the minute, and head entirely free from pain or flushing; his

tongue had become clean; thirst gone, and appetite returning. All these particulars were of the most encouraging description, and were not counter-balanced by any symptom indicative of the fast approaching danger. On the following day, the eighteenth from the beginning of his fever, I was again sent for in haste, and found that the patient had become suddenly and outrageously delirious during the night, an occurrence which seemed the more surprising, as no other symptom existed denoting a return of fever. This gentleman's life was saved with great difficulty, for the delirium continued several days, and was at last only appeased by considerable doses of tartar emetic, combined with musk and opium.

There is one fact connected with the history of fever which should never be forgotten by those who are occupied in its treatment: I allude here to the occurrence of sudden accidents, or the supervention of other diseases, producing a material alteration in the circumstances of the case, and leading to new and more alarming dangers. You should not divest yourselves of all further anxiety for the patient, or relax in your attentions, because the fever has exhibited a tendency to decline, and a favourable crisis has taken place: crisis may occur, and convalescence may be established, and yet the patient may relapse, or he may be struck down again by the unexpected incursion of a new and dangerous malady, or he may expire suddenly in the course of a few minutes. The functions of the brain and heart may suddenly give way, and death may take place unexpectedly and at once. Thus, it not unfrequently happens that a patient during his convalescence falls into a state of syncope, from remaining too long in the erect posture, and if assistance be not promptly afforded, life is speedily extinguished. In the state of debility which follows acute and exhausting diseases, and where the patient is very liable to syncope, the most assiduous attention is required. During the epidemic of 1826, death took place under such circumstances in five or six instances, and the convalescents lost their lives from incautiously sitting up or walking about the room too long, or attempting to reach the night-chair without assistance. There are many other causes capable of producing a sudden and alarming change in the state of convalescents from fever. One of the most obvious of these is error or excess in diet, which is apt to bring on a return of the fever in an aggravated form, accompanied by symptoms of gastro-enteric inflammation, and sometimes terminating fatally in forty-eight hours.

I shall now proceed to lay before you a sketch of a very important form of disease which attacks convalescents from fever, and runs a course of remarkable intensity and rapidity. I am not aware that this form of disease has been described by pathological writers: the nearest approach to a description of it is an account of the swelled leg which occurs after fever, given by a Glasgow physician. Dr. Stokes and I have given a description of a swelled leg after fever, as observed during the epidemic of 1826, but the important and fatal form of the disease which I am about to describe, did not come under my notice until within a more recent period.

Before the commencement of the present session, a fine young woman, aged twenty-four, previously healthy and robust, was admitted into our fever ward. She was admitted on the 26th of September, having been at that time eight days ill, and labouring chiefly under gastric and cerebral symptoms. Her treatment consisted in the application of leeches to the epigastrium and head, cooling drinks, and blue pill combined with James's powder. Under the use of these and other appropriate remedies, the fever declined, and on

the 1st of October the cerebral and gastric symptoms had disappeared, and the patient complained merely of a slight degree of feverishness. On the 2nd of October she was seized with rigors and horripilation, followed by intense pain of the left mamma, accompanied by numbness and loss of power of the corresponding arm. She was leeches with some relief, but passed a sleepless night, and next day an oblong patch of redness was seen extending upwards from the nipple; the pain was still violent, and she could not bear the slightest touch on the affected parts. The breast was leeches again, and fomented assiduously during the day. On the fourth the erysipelas was spreading, and the pain was still agonising. She screamed out whenever it was touched, and could not bear even the weight of her dress or covering. On examining the breast, no enlargement or hardness could be observed; there was no remarkable heat or tension, and with the exception of a slight erysipelatous redness, and pain rivalling that of *tic douloureux* in severity, there was nothing to indicate the presence of the disease. The left arm continued numb and powerless.

This state of things was accompanied by remarkable increase of fever, as manifested by foul tongue, accelerated pulse, and sleepless nights. She now began to complain of dull pain in the calf of the right leg, aggravated by pressure or motion, but not attended with any apparent increase of heat, swelling, or induration. On the fifth she is reported to have passed a sleepless night, although the watery extract of opium had been administered freely on the preceding day and evening; the erysipelatous redness had extended nearly as high as the clavicle, and the affected parts had now begun to swell considerably. On the sixth she is stated to have had some sleep, and the erysipelas was extending, in some parts covered with vesicles. She again complained of cramps in the right leg, and on making an examination we found considerable tenderness on making deep pressure, but no external indication of disease. Her debility was increasing, accompanied by a tendency to looseness of bowels, for which she was ordered enemata of sulphate of quina and laudanum. On the following night she was attacked with intense pain in the leg, accompanied by exquisite tenderness to the touch, but no redness, swelling, or increase of temperature. The erysipelatous affection of the breast had now become pale, and ceased to spread. The enemata were continued, the parts dressed with mercurial ointment and extract of belladonna, and wine freely allowed.

She passed the night in great agony from the intense pain in the leg, and complained of frequently recurring rigors followed by perspiration. She also stated that for the last two or three days she had experienced repeated attacks of tremor in the affected limb; one of these tremors attacked the limb on the night of the eighth, and continued for three or four hours, terminating in copious general perspiration. These increased on the following day, attended with increase of fever, thirst, and debility, and the pain in the leg continued with unabated violence. It is worthy of remark that at this time there was no erysipelatous redness or discoloration of the affected limb, and scarcely any swelling. On the ninth she is reported to have passed the night screaming and sleepless, she vomited three or four times, complained of intense pain in the abdomen, and had a violent rigor which continued from one o'clock to six in the morning, followed by profuse perspiration. The right leg continued exquisitely painful as before, became somewhat swollen, and its veins appeared more prominent than natural, but there was no discoloration of the integuments. Both arms were now painful on motion, and the left leg became

painful and tender on pressure. Under this complication she sank rapidly, and died at three o'clock in the afternoon.

On dissection, purulent matter was found under the integuments covering the left breast, but the gland itself appeared healthy. There was no vascularity nor other traces of peritoneal inflammation, and the abdominal viscera were healthy. The right leg was infiltrated; its veins were pervious and elastic, but their internal coat exhibited a rose-coloured tinge.

Here, then, we have a very remarkable and formidable train of symptoms, arising without any obvious cause, running a rapid and fatal course, and exhibiting a character of singular intractability. From all that we had previously seen or heard, this young woman's constitution was robust and healthy, her fever had been treated successfully, and she appeared to be getting over it without any sinister accident, or any complication capable of disturbing her convalescence; yet at this period she is attacked with fever of a new type, accompanied by local affections of the breast and extremities, which run a rapidly fatal course, and exhibit phenomena of a new and extraordinary character. She is first attacked with erysipelas of the left mamma, accompanied by pain and loss of power of the corresponding arm; then she gets exquisite pain of the right leg, and then of the left leg and right arm; in fact the whole four extremities are more or less implicated.

Now by what name should we designate this affection, or what would be the most appropriate term to apply to it? Was it phlebitis, or erysipelas, or phlegmasia dolens? The affection of the mamma certainly resembled erysipelas, but differed from it in the agonising character of the pain, and I have already observed that in the legs or arms there was no appearance of redness or discoloration. That it was pure phlebitis I think we are not authorised in concluding, from the phenomena observed on dissection. There was no pus in the veins (an occurrence which might naturally be expected from the acute character of the disease), no thickening or induration, the coats of the veins were elastic, and to all appearance healthy, with the exception of a rose-coloured tinge. Now considering the previous state of the woman's system, I do not think that we can conclude as to the existence of pure phlebitis on such slight grounds, or say that the whole group of symptoms which characterised the secondary attack depended solely on inflammation of the veins.

The disease of which I speak simulated in many points phlegmasia dolens, but differed from it in the phenomena observed in the breast, as well as its more general effusion, and the absence of that peculiar whiteness of the affected limb which characterises the latter affection. It appears to be a form of disease resulting from the generation of a morbid poison in the system, and manifesting itself in diffuse subcutaneous inflammation of a low and cachectic nature, affecting primarily the skin and subcutaneous areolar tissue, and afterwards involving all the subjacent parts more or less according to their different susceptibilities. It was accompanied from the commencement by increased irritability of the muscular and cutaneous nerves; indeed in the case just detailed, the nerves appear to be parts primarily affected. Another remarkable circumstance connected with this case is the loss of power observed in the affected limbs. In all cases where a severe and painful affection of the nerves is present, you have more or less loss of power, but as far as my observation has gone, there appears to be a difference in the derangement of muscular motion connected with painful affections of large nervous trunks, and that which accompanies an affection of the terminating

fibrils or nervous extremities. In the latter case the degree of paralysis is always more considerable; of this, phlegmasia dolens affords a good illustration. In this disease the extremities of the nerves are chiefly affected, and the loss of power is always greater than when a large nervous trunk is affected, as for instance in sciatica. In the latter affection the pain is often extremely violent, but the motion of the limb is never so much impeded as it is when the nervous extremities are the parts chiefly engaged.

You perceive, then, that the affection which I have just described consists in the development of low, malignant, and irregular inflammatory affections in various parts of the body, but particularly in the extremities, commencing probably in the subcutaneous areolar tissue, but subsequently extending to all the neighbouring parts, and exhibiting many of the characters of those inflammations which result from the presence of an animal poison in the system. A peculiar feature of this affection, also, is the intense neuralgic pain which accompanied it, and I think it might with some propriety be designated as neuralgic diffuse inflammation after fever. It is accompanied by fever of a peculiar type, ushered in by rigors, and characterised by remarkable derangement of the digestive canal, debility, and sleeplessness. A point, also, which deserves notice in this case was the recurrent rigors and perspirations, marking the occurrence of new and additional mischief, and indicating the malignant and intractable nature of the disease.

One word as to the connection of this disease with phlebitis. Some pathologists are of opinion that phlegmasia dolens and swelled leg after fever are nothing more than modifications of phlebitis. I cannot, I must confess, agree with this opinion, nor am I prepared to admit that the symptoms in the foregoing case were referable to mere inflammation of the veins. I do not deny that the veins may be affected, but phlebitis is not the first link in the morbid chain, and is itself merely a consequence of the same unknown cause which determined the inflammation of other tissues. I beg leave to observe here that the affection I have just described seems like others capable of existing in very different degrees. Thus, I have seen some instances in which there was no other symptom but severe pain of the extremities, generally about the calves of the legs, and which was relieved by warm fomentations and mild aperients. Again, I have seen, in addition to this symptom, swelling and tenderness of the legs, which, however, generally yielded to leeching and other appropriate means. Probably we are authorised from this and other facts in concluding that the disease is not always of a malignant and fatal character, and that there are at least certain forms of it amenable even to simple and ordinary treatment: you should, however, be always on your guard when patients recovering from fever are attacked with pain, in the lower extremities particularly, as this symptom not unfrequently ushers in a serious and alarming disease.

The next case of this disease observed in our wards, occurred also in a young woman, named Dillon, aged 23, and apparently of good constitution. She was admitted into the fever ward on the 2nd of September, being at that time about seven or eight days ill. She had on admission the usual symptoms of fever, accompanied by intense bronchitis, dyspnoea, costiveness, and loss of sleep. Under the use of cupping, blisters, calomel, and other appropriate means, the fever and pulmonary symptoms declined, and she was pronounced convalescent on the 12th. On the 18th she had been up as usual, but towards evening complained of rigors, and said she felt her right leg very painful. The pain of the limb continued next day, intermitted during the

following night, but returned on the morning of the 20th with increased violence. She was leeched without much relief, and on the 21st she is reported to be extremely feverish, her pulse frequent, her tongue foul, bowels loose. She had passed a bad night, and the leg was still exquisitely painful and somewhat swollen. She had twelve leeches again applied with some relief, but on the 22nd the left shoulder became similarly affected with pain, and so tender as not to admit of the slightest pressure. On the 23rd there was some diminution of pain in the leg and shoulder, but her pulse was jerking and unequal; her tongue parched; her countenance anxious; and she complained of intense pain in the small of the back. She passed a sleepless night, and next day complained of exquisite pain in the left lower extremity. This was accompanied by an exacerbation of the febrile symptoms; she moaned constantly; her pulse became excessively feeble and rapid; and she died on the 24th.

On dissection, the peritoneum, particularly that portion of it attached to the abdominal parietes, was found remarkably vascular, the vascularity being most intense over the hypogastric region. There was no effusion of lymph or serum, but about half an ounce of purulent fluid was discovered in the cavity of the pelvis. The viscera were healthy. The internal surface of the principle venous trunks was tinged red, and there was a small quantity of coagulated blood in their cavities. On making an incision into the right leg, along the course of the internal saphena, the subcutaneous areolar membrane was found infiltrated with sero-sanguineous fluid; the texture of the veins was here apparently natural, their cavity pervious and filled with fluid blood, without any lymph or purulent admixture. No distention or enlargement of the lymphatics was observed.

Here you have a case corresponding in its main points with the former, and differing from it chiefly in being complicated with peritoneal inflammation and synovitis of the shoulder-joint. Its origin was similar; it exhibited the same kind of intense neuralgic pain; the same fever; the same extensive diffusion of local inflammation, and the same unfavourable termination. The chief points of difference were that in the latter case the disease attacked the synovial membrane of the shoulder-joint, and the serous membrane of the abdominal cavity. This, however, is by no means unusual. As to the synovitis, I have observed it in more than one instance after fever. I have witnessed a very remarkable instance of it in a man in this hospital who was attacked with swelled leg after fever. In addition to the affection of the leg, he had also synovitis of the knee-joint of so severe and intractable a character that he recovered with difficulty, with an ankylosed state of the joints. On the whole, the disease which we have been considering is one of great importance, and deserves particular attention. It is sometimes of a very unmanageable character, and baffles our best directed efforts. The treatment which appears best adapted for it consists in leeching, fomentations, and the application of mercurial ointment with extract of belladonna to the affected parts; these, combined with the internal use of quina and opium, with occasional doses of calomel, seem to comprise the chief remedies on which we can place any reliance.

Before I conclude this lecture I shall allude briefly to the very interesting case of Sarah O'Neil. This young woman was admitted on the 17th of February, having been attacked on the 10th with fever of the ordinary type. On the day after her admission, she complained of want of sleep, and pain of the forehead and temples; but she had no raving, *timitus aurium*, intolerance

of light, or other symptom of inflammation of the brain. She had been confined about a fortnight before she came in, and complained that her breasts were very troublesome to her. Her belly was soft and fallen, quite free from tenderness or soreness, and she stated that her bowels were free. Her tongue was furred, her pulse 130, the lochia suppressed for the last two days. Things went on tolerably well for four or five days, when her belly became tympanitic, she began to complain of pain on pressure. The action of the heart now became more violent; her pulse rose to 140, and blood began to appear in her stools. On the 24th of February—that is to say about the fourteenth day of her illness—her pulse was 150; she passed a large quantity of blood from the bowels, and the tympanitis subsided.

In cases of fever accompanied by tympanitis and signs of intestinal congestion, hemorrhage, from the bowels, particularly when it occurs on one of the critical days, should not be interfered with. It is in this way that nature very frequently brings about relief of the congestion and irritation of the gastrointestinal mucous membrane, just as she relieves congestion of the head by bleeding from the nose. In the case of a lady whom I attended along with Mr. Palmer, some time ago, at Drumcondra, the occurrence of intestinal hemorrhage was followed by the most marked effects; her belly became soft, the tympanitis disappeared, and all her febrile symptoms were speedily removed. The appearance of blood, therefore, at such periods and under such circumstances, is to be looked on as a favourable occurrence; nor should it be interfered with in any way until, from its continuance or its quantity, it appears likely to produce debilitating effects.

In the present case, however, this hemorrhage will require to be very carefully watched. The woman's system is that which is favourable to profuse fluxes of blood, for it is not long since her accouchement, and she has suppression of the lochia. She has had but little fever for the last two or three days, but the action of the heart still continues extremely violent, and her pulse is still rising. Respiration, too, has been considerably accelerated, and, where this occurs, you have always reason to apprehend danger. I have accordingly endeavoured to moderate the hemorrhage by the use of acetate of lead and opium. A draught composed of acetate of lead, eight minims of tincture of opium, and fifteen minims of wine vinegar, in six drachms of water, has been prescribed to be taken as occasion requires. A large blister has been applied, so as to cover the epigastrium and sternum, and she has been allowed port wine and chicken broth. Where a patient, debilitated by previous fever, has been attacked with hemorrhage, you should be careful in supporting the system by small quantities of wine and light nutritious food; for there is always more or less danger to be apprehended of a sinking of the powers of life. In cases of this kind the cautious use of acetate of lead, with opium and wine, are the only means on which we can rely with any confidence.

LECTURE XX.

NERVOUS FEVER.—CAUTION AS TO PROGNOSIS.—PRESCRIPTIONS IN FEVER.—
CONCLUDING REMARKS.

PERMIT me to make one or two observations on a case of which I have already spoken, and which, as I expected, has terminated fatally. A man named Lynam has been lying ill for a long time in a large fever ward; I wrote at the top of his card "Nervous Fever," and remarked to the class that his disease was pure fever, of a nervous type, unaccompanied by any symptoms indicating decided local inflammation. You will recollect that his symptoms were heat of skin, quick, weak, compressible pulse, thirst, watchfulness, and low muttering delirium, unattended with any appreciable sign of visceral disease, or any symptoms denoting a putrescent state of the fluids. It was not congestive or putrid, or gastro-enteric, or petechial fever; neither could it be called a cerebral fever; it was only by separating from it the idea of each of these species, and by studying its negative characters, that you could arrive at something like an accurate conception of the type of the disease. It was, as I have already stated, nervous fever, modified by the patient's previous habits of long-continued intemperance. When a patient addicted to intemperate habits gets an attack of fever from cold, fatigue, or exposure to contagion, you will generally find the disease exhibit a compound or mixed character, the phenomena of fever being combined with those of delirium tremens. And so it was in this case; the man had general tremors, with persistent watchfulness, and muttering delirium.

His treatment consisted in the employment of medicines calculated to soothe the nervous system, and I kept a constant watch over the state of the principal viscera. About a week after he came under my care, and about five weeks from the commencement of his fever (for he was nearly a month ill before he came to the hospital), he was attacked with erysipelatous inflammation of the face and scalp. The disease commenced on the face, and, travelling upwards, very rapidly attacked the whole scalp and back of the neck, its progress being accompanied by great aggravation of symptoms. At that time I remarked to the class that I did not entertain any apprehension of a metastasis of the erysipelas, that I had no fears of the supervention of inflammation of the brain, and its train of alarming consequences, but that no good was portended by this attack of cutaneous inflammation, and no relief of the internal parts could be expected from it, for every symptom appeared aggravated from the moment that the erysipelas commenced. I pointed out the total inadmissibility of any thing like vigorous or antiphlogistic treatment, in a case where the disease had appeared in an individual of broken constitution, labouring under a combination of delirium tremens with low fever; and said that even the remedy which we had found most successful in similar cases, namely sulphate of quina and opium, offered but a feeble hope of arresting the malady. It failed, as we expected, and the man died

yesterday, worn out by long suffering and exhaustion. Eighteen hours after death we made a most careful examination of all the viscera of the three great cavities ; not a single organ exhibited the least mark of inflammation ; we could not find any where even the slightest trace of local congestion. The man had all his viscera in an apparently sound and normal condition, and died of pure nervous fever.

Some persons look upon the existence of fever independent of topical affections as purely imaginary, and deem those who have recorded such forms of disease as too ignorant or too lazy to make the necessary pathological investigations. I have not time at present to enter into this subject, but of nothing am I more convinced, than that fever may exist without any appreciable local lesion, that it may affect every organ and every tissue of the body alike, and yet that the most accurate symptomatologist cannot put his finger on any one single part and say, here is local inflammation of a decided character. I have met with many instances confirmatory of this fact in hospital practice. I recollect a case which occurred some time ago at this hospital, which was equally as remarkable for its extraordinary duration, as for the total absence of any thing like visceral lesion. The patient was admitted into the small fever ward, labouring under an attack of nervous fever ; he had thirst, hot skin, pulse from 110 to 120, occasional delirium and watchfulness, and these symptoms went on week after week, and month after month, unaccompanied, during the whole course of the disease, by any phenomena indicating the existence of local inflammation. His treatment was purely expectant and temporising ; we had no cerebral, abdominal, or thoracic lesion to combat ; there was no organ in which the febrile derangement could be said to have fixed itself exclusively, no threatening disorganisation calling for the employment of prompt, new, and energetic means. At last, after the fever had continued for very nearly three months, the man complaining all the time of more or less thirst, hot skin, watchfulness, and headache, with occasional delirium, the disease terminated in a well-marked crisis, accompanied by sweating. He fell asleep, began to perspire, awoke with a pulse nearly reduced to the natural standard, and perfectly recovered. I may observe that I have never seen fever last so long as this, nor have I ever observed a perfect crisis in any case after the forty-second day. Some time ago I attended the brother of a gentleman now present, who had a long and very severe attack of fever ; though he never had a remission during his illness, and was in very urgent danger, he got a perfect crisis with profuse perspiration on the forty-second day, and is now in the enjoyment of excellent health.

You perceive, then, that the case of Lynam presents some circumstances worthy of notice. His fever went on to its termination without any symptoms of inflammation in any viscus, and his actual condition, as carefully ascertained by an accurate post-mortem examination, affords a useful lesson to the pathologist. His case is also interesting as showing how previous habits will modify in a remarkable degree the character of fever ; for in him you have seen fever combined with the phenomena of delirium tremens, a state of things which it was natural to expect in a man of extremely intemperate habits. The termination of the erysipelas without any sign of disorganisation within the cranium is also worthy of notice. In such cases you have it frequently followed by inflammation of the brain and its membranes, and an exudation of pus on the surface of one or both the hemispheres ; but here you perceive that there has been no extension of the disease, nor anything

that should have induced us to give up the plan of treatment we adopted, and direct our therapeutic means to the head.

There is another man, named Vero, in the fever ward, whose case I beg you will study with attention. He applied for admission here some time ago, labouring under violent and general bronchitis, accompanied by high inflammatory fever; we took him in at the time, as his case was one of the most urgent danger, but were obliged, by the crowded state of the hospital, to put him into the large fever ward. It is unnecessary for me to detail the treatment employed, as you have all witnessed it. By the most energetic measures, we succeeded in arresting the disease, but his convalescence was rendered tedious in consequence of his having been suddenly affected by a small quantity of mercury. His mouth became very sore, his breath fetid, his gums spongy, the inside of his lips covered with lymph, and his system exhibited all the marks of mercurial irritation; but, under the care of Mr. Grady, a gradual but decided improvement in his condition was going on, and he was advancing rapidly in convalescence, when, unluckily for himself, he was persuaded to leave the hospital for the sake of voting at the city of Dublin election. In doing this he was necessarily much fatigued, and was exposed to cold on returning from the heated booth.

Now, mark the consequences of this indiscretion. This man just arrived at the period of convalescence from a severe and dangerous inflammatory fever, and greatly debilitated both by the disease and the venesections and other remedies necessarily employed, improvidently exposes himself while his frame was still emaciated and weak, and while his mouth was still sore in consequence of severe mercurial salivation: in this condition he exposes himself to the operation of mental excitement, great bodily fatigue, and cold,—and what have been the consequences?—Why, that a new attack of fever immediately struck him to the ground with a heavy hand, and, after an absence of ten days, he returned to the hospital on the 24th of January, complaining of rigors, and other symptoms indicative of commencing fever. We saw him next morning, that is, before this new fever had lasted more than twenty-four hours, and we found him affected in a most remarkable manner; we found him labouring under a number of severe symptoms, which would have led the most experienced, if asked to guess how long his fever had already lasted, into the commission of a gross error, for he would answer that it must be at least the eleventh day. It is, indeed, very rare to find fever at once commencing with symptoms such as we observed on the first day in Vero. Great prostration of strength, hot skin, dry tongue, pulse 108, nervous agitation, restlessness, together with subsultus tendinum, were present from the commencement. The subsultus was very remarkable, and increased to such a degree, even on the second day, that Mr. Grady found it very difficult to count the pulse at the wrist; and yet, though his muscular system was thus irregularly excited, and its nervous influence deranged, he had not even a tendency to delirium, and he slept soundly; neither had he the least headache.

I called your attention to this circumstance at the bed of the patient, and I endeavoured to impress strongly on your minds how forcibly this case opposes the doctrines of those who attribute all the nervous disturbance of every part of the system, and amongst the rest subsultus, to congestion or to inflammation of the brain. When the subsultus had attained to a degree of violence in Vero's case such as we seldom witness, we remarked, nevertheless, that he slept well, had a clear eye, without the least approach to

suffusion, and that he was free from headache, heat of scalp, or throbbing of the temporal arteries. Neither were we able to detect the slightest indication of inflammation, or even of congestion, in the chest or abdomen. The breathing was indeed quickened, but only in proportion to the acceleration of the pulse, and there was no cough or thoracic pain or uneasiness. The belly was fallen, soft, and quite free from tenderness, and there were no griping pains, flatulence, nausea, or diarrhœa, and yet the patient was evidently very dangerously ill. Agitated with subsultus, he was in a constant state of restlessness when awake; his skin was hot, his tongue dry, and his weakness was sudden and excessive; in short, he was labouring under intense *nervous fever*. This is a rare form of disease, and one the very existence of which most modern pathologists have been in the habit of denying; but, as I told you before, I have seen several examples of it.

I may remark that, in the present epidemic fever,* the termination of the disease by a well-marked crisis never occurs. Now, in the epidemic fever of which I have spoken in a former lecture, and which committed such devastations in 1826, a crisis was observable in the majority of the cases, and was almost always preceded by rigors and a hot fit, attended for a few hours with marked exacerbation of the symptoms, and followed by a most profuse, warm, general perspiration, bringing perfect relief, and often so excessive that the steam of it could be seen issuing forth in vapour through the blankets in which the patient lay wrapped. In the beginning of the epidemic, the critical rigor often took place on the fifth day, and oftener on the seventh, but, as the disease continued, these short fevers, which, by the by, always left the patient very liable to relapse, entirely disappeared; and when the epidemic reached its acme, the crisis rarely took place so early as on the eleventh day, and most generally on the fourteenth or seventeenth day.

You perceive that, in judging of the truth of the doctrines held by the ancients, concerning the existence of critical days in fevers, an observer of the present epidemic might be led into error, and might, by generalising too hastily, arrive at the false conclusion that this doctrine of critical days is totally destitute of foundation. But, to return to our patient Vero, it is not very difficult to explain why, in him, the moment fever was excited it assumed the nervous type. He had been debilitated by severe inflammatory fever and by the active antiphlogistic treatment, and, above all, his nervous system had been severely tried by an unexpected mercurial salivation, brought on by an unusually small quantity of calomel.

You are aware that various nervous symptoms attended with irregular muscular action, and simulating chorea, or paralysis agitans, are frequently the result of metallic salts, whether lead or mercury. For this reason, I look upon the previous mercurialisation as the chief cause of the nervous type of Vero's fever. In spite of all our efforts, he died exhausted on the tenth day.

As long as life lasts, no matter how fatal the symptoms may appear to be, you should never despair of recovery in fever. You will find many examples of recovery in the most hopeless cases in the lectures which I have given you on this disease, but I cannot forbear quoting the following striking illustration which occurred in the practice of Dr. Hudson of Navan. He consulted me as to the treatment during convalescence, and I shall read for you his report:—

“Miss B—— appears to have sickened about the 9th or 10th of June, 1844, but I did not see her until the 20th. She had then some very serious

* 1834-5.

symptoms. She complained of extreme debility, had much subsultus, constant sweatings, diarrhoea and meteorism, and unusually severe headache. I ordered a few leeches to be applied behind the ears, and for some days endeavoured to keep the diarrhoea in check by small doses of hydrargyrum cum cretâ and Dover's powder. It increased, however, and I applied a blister over the cœcum and gave acetate of lead until a check was given it. By this time (five or six days after my first visit) the head had become more seriously engaged. She had low muttering, lay on her back, had involuntary evacuations, &c., and diarrhoea set in more smartly than ever. I applied a blister to the nape of the neck, gave port wine in small quantities pretty frequently, and decoction of bark, with aromatic confection, and occasional doses of musk and camphor. I ceased giving acetate of lead by the mouth, and ordered an enema of four grains of the acetate and four drops of laudanum to be given on each return of the diarrhoea. This treatment gave it a final check, and though the poor patient's weakness was now extreme, still I had hopes that she would fight it out; but on the night of June 30th, a fearful change came on. Cold skin, succeeded by heat and excessive greasy perspirations, laborious breathing with loud rales, fluttering pulse, at times imperceptible, &c. &c. I was sent for early on the following morning, and found her breathing loudly and hurriedly, with *stertor*; the eye fixed and glassy, pupils contracted to a point, face bloated and livid, loud rales throughout the chest. I found it not possible to arouse her to consciousness. The abdomen was swelled and tympanitic to an enormous extent. She had convulsive twitchings of the mouth, a commencing puff in the respiration. In fact, she seemed dying; and as the closing act of the fever seemed to be a sudden pulmonary congestion, I proposed to try the desperate chance of a bleeding, if only to gain a little time for further measures. I accordingly took away four ounces from the arm, and immediately applied sinapisms to the spine and feet, and relays of hot flannel, sprinkled with turpentine, to the belly, giving a few drops of the oil of turpentine in brandy punch. The turgescence and livid colour left the face after the bleeding, and never returned; but in any other respect, save that the breathing was a little easier, I did not see any improvement during three hours that I stayed, and I left without a hope of her surviving many hours. *Hearing, vision, and consciousness were lost, and nothing but the power of swallowing remained.* While this continued, I directed brandy and water to be given every half hour.

"During the following night she seemed to be getting gradually weaker, and the pulse toward morning became irregular and fluttering; but as she continued to live on, and even began to show that she saw and knew those about her, her mother again sent to me, stating how she was, and leaving me to decide whether anything more should be done. As the respiration still continued to be laborious and accompanied by rales, I recommended flying blisters over the course of the eighth pair which you used formerly to advise in certain cases—a practice which I have often seen followed by the best effects, and apparently so here; for, as I remained with the patient during the night, I marked a gradual improvement as the blisters produced their effect, and, though I was still most anxious about her, she was nevertheless incomparably better, for the pulse became steady and full, and averaged very little over 100. The breathing was less hurried and laborious, though still far from easy; the meteorism had entirely subsided; and in the morning she passed some solid fœces. The urine passed during the day of the 1st of August was the most remarkable I ever saw. It exactly resembled porter with

a thick layer of chalk deposited. The horrible sweat ceased, and the skin became moderately warm and soft. I now withdrew my stimulants, except a little brandy punch at longer intervals, and gave small doses of senega and carbonate of ammonia."

From the date of Dr. Hudson's report, which closes here, this young lady gradually but slowly recovered. No case could teach you more decidedly the necessity for a cautious prognosis in fever, and that you should never relax your treatment in despair of recovery.

Before concluding the subject of fever, I wish to speak of some prescriptions which I am in the habit of using. In the treatment of fever it is frequently of importance to gain time, and periods will occur in every long fever, in which there may be no direct indication for the exhibition of any powerful remedy; at the same time, such is the ignorance of non-medical persons, and the anxiety of the patient's friends is so intense, that they cannot imagine how it is possible for an attentive physician to let twelve hours pass away without doing something. The mere circumstance of seeing the fever going on is sufficient proof to them of the necessity of making renewed efforts for its removal. This, however, is very excusable. If any of you happened to be ill, I dare say you could scarcely bear to pass many hours without taking something which you supposed might prove either immediately or remotely useful. Consequently, we could not treat fever in a satisfactory manner without medicines of what may be termed an expectant character, and calculated to fill up the spaces intervening between those periods when active treatment is necessary. You are not to suppose that in ordering such medicines you are acting a dishonest part, and practising a deception unworthy of your profession; on the contrary, your conduct is perfectly just and proper; and though you are convinced that no medicine is required, still it will be necessary to prescribe something, if you do not wish to lose the confidence of the patient and his friends.

Again, if, at a period when you say that no medicine is necessary, and when the patient has passed twenty-four hours or two days without taking anything, an unexpected turn in his disorder should take place, people will be very apt to say, either that you did not know what to do, or that you took no steps to obviate the threatened change, and that one or two days were completely lost. Conduct like this has frequently brought down a great deal of censure on medical men. It may be said that these are mere prejudices, and above the dignity of a man of firm and consistent character; but since prejudices are intimately blended with human nature, and constitute, as it were, a part of it, it is much better in many cases to submit to them, particularly when compliance does not involve a sacrifice of principle. In cases of acute disease of any considerable duration, and especially in private practice, there are periods when medicines of an expectant and temporising character must be employed; and hence the introduction of a class of remedies extensively used in fever and other complaints, and generally denominated palliatives. These are remedies which have a general tendency to assuage thirst, act as diluents, gently promote the secretions of the skin, intestinal canal, or kidneys, and which are known to possess at least the negative quality of doing no harm. They are most commonly prescribed in combination with a considerable quantity of fluid, and hence are administered either in the form of draught or mixture. The medicine in most general use among the physicians of Dublin is one which was introduced by Dr. Cheyne. It is prepared by dissolving a drachm of carbonate of ammonia in three ounces and a half of water, with as

much lemon juice as will saturate it ; the mixture is then sweetened with syrup of orange peel, and given in doses of two tablespoonfuls every third or fourth hour. In this way a solution of the citrate of ammonia is formed, which possesses the properties of a mild anti-febrile and gently stimulant diaphoretic.

Now it cannot be denied that this mixture answers the purpose of an expectant remedy, calculated to pass away the time, and do no injury ; but it appears to labour under one considerable disadvantage, it is not agreeable to the taste. If you taste the citrate or acetate of ammonia, you will find that its flavour is by no means pleasant, and I need not tell you that, in cases where there is no actual indication to be fulfilled, it is of importance to have something that will not be disagreeable to the patient. Feeling, therefore, the necessity of altering this prescription, I have lately introduced another, which I am happy to find has been extensively adopted, and which is formed by substituting the carbonate of soda for the carbonate of ammonia. The mode in which I generally employ it is the following :—carbonate of soda, a drachm ; water, four ounces ; lemon juice, a sufficient quantity to saturate the alkali ; syrup of orange peel, half an ounce ; tincture of orange peel, two drachms. A little more than an ounce and a half of lemon juice will be sufficient to saturate this quantity of carbonate of soda, whereas it would take from two and a half to three ounces to saturate the same quantity of carbonate of ammonia. If you wish to have a weaker solution, and I believe it is the better way, you can dissolve a drachm of carbonate of soda in five ounces of water instead of four. Nothing can be more agreeable in flavour than this mixture. The citrate of soda which is formed, does not, it is true, exert any active influence on the animal economy, but it partakes in the properties of neutral salts, determines gently to the kidneys, tends to keep up a soluble state of the bowels, and forms a most grateful and refreshing beverage. The syrup of orange peel gives the mixture an extremely pleasant flavour, and this is further heightened by the agreeable aromatic bitter of the tincture. Since I commenced using it, I have found it to answer all the necessary purposes extremely well, and I can recommend it to you with great confidence.

A woman named Anne Scarlet was admitted on Saturday, concerning whose case it may be necessary to make a few observations. She states that she has been ill for the last eight days, and that her illness originated in cold, preceded by rigors, and followed by feverish symptoms. The general pyrexia had subsided at the period of her admission ; but she had some symptoms worthy of attention. Her pulse was seventy-two, and regular ; her skin rather cool, and her bowels natural ; but she complained of acute pain in the left side, which, she said, came now and then, catching her breath, and preventing her from taken a full inspiration. This pain was so intense, and seemed to affect respiration so considerably, that, looking to its situation and its effects, you would at first sight be inclined to think that it arose either from pleurisy or pericarditis. On examining the chest, however, by the stethoscope and percussion, we found the sound was clear and normal : there were no rales present, and the respiratory murmur was heard distinctly over the whole lung. In fact, auscultation showed that the cause of the pain was not connected with pleuritis, pneumonia, or pericarditis. What then was it ? A variety of pleurodynia, well worthy of your attention as being connected in her case with retention of the milk and engorgement of the left mamma. At the time she was attacked with cold, she happened to be only a few days after childbirth ; the feverishness which ensued obliged her to give up

nursing, and in this way a sudden and unnatural check was put upon the secretion of milk. When an occurrence of this kind takes place, and proper means are not taken to obviate the mischief, a high degree of local irritation is the consequence, producing inflammation of one or both the mammæ, which, if not treated well and energetically, will certainly end in mammary abscess.

What I wish to draw your attention to, however, at present, is this—that inflammation of the mamma, arising from retention of milk, is very apt to be attended with pleurodynia in one or more parts of the chest. The flow of milk to the breasts, three or four days after delivery, is very often accompanied by flying pleurodynia; and the formation of mammary inflammation, from the arrest of lacteal secretion, is also very frequently attended with fixed pains of a pleuritic character.

The treatment adopted in this case was very simple. In the first place, you endeavour to check the determination of fluid to the breast; and for this purpose you exhibit a purgative of a hydragogue kind, calculated to act briskly on the bowels. We gave a combination of infusion of senna, sulphate of magnesia, tincture of senna, and electuary of scammony, which acted six or seven times on the bowels, and tended materially to relieve, by derivation, the mammary congestion. In the next place, we directed our attention to the breast, and endeavoured to remove the milk by the use of the syringe employed for that purpose. The milk may be removed from the breast by means of the syringe, or by sucking with a breast-bottle, and where the tenderness of the part is so great that neither of these modes can be employed, the next best means is diligent fomentation. This produces a constant oozing from the breast, and if the fomentation employed be made with a decoction of poppy heads, it has considerable effect in abating pain and inflammation. We also applied leeches in this case, not with the view of removing the pleurodynia, but with the intention of removing its cause, mammary inflammation. By the use of means directed to the breast, you will find that we can remove all symptoms of pleurodynia, and that the pain and difficulty of breathing will soon disappear. This is a simple case, but it is one of frequent occurrence, and it requires some tact and management for its successful treatment.

You have probably observed that, in the treatment of all the cases of fever that came before me, I have not prescribed altogether a dozen grains of calomel, that I have very seldom ordered any kind of purgative medicine, that I have been sparing in the use of leeches and cupping, and that I have not ordered a single patient to be bled. This I am sure will appear strange to the various sects of pathologists and theorists whom I have seen, like so many waves succeeding each other, and whose doctrines were equally doomed to break on the solid and immovable shore of truth. I recollect how each doctrine arose, and made converts, and influenced practice; how each had its day, and then sank into that obscurity and neglect to which vain and profitless speculations are always destined.

I recollect when it was the custom to commence the treatment of fever by prescribing ten grains of calomel, to be followed by a bolus containing fifteen grains of jalap, or by a large draught composed of infusion of senna, epsom salts, and electuary of scammony. I remember the time when it was the fashion to bleed every case of fever which came into hospital, no matter what the stage of the disease might be, or what the condition of the patient was at the time of admission. I recollect, too, when the prostration and weakness which accompanies local inflammation, particularly of the digestive system, used to be treated with wine and stimulants.

Every epidemic is peculiar and distinct in its nature, and each consequently requires a distinct and peculiar mode of treatment. Hence the necessity of studying fever unbiassed by any preconceived notions, and independent of the trammels of dogmatism. With a person who observes in this way, who studies the disease as it is, and not as it is described; whose practice is regulated, not by the doctrines of the schools, but by the results of investigation, carefully weighed and considered; with such a person, the treatment of fever will be simple and successful, and I believe that there is no disease in which success so much depends on treatment as fever. It is difficult to explain how it came to pass that a contrary opinion could be promulgated in Dublin. Something must be attributed to the neglect or incapacity of those whose duty it was to teach the truth.

The chief cause may, however, be traced to the activity and zeal which inspired some, not only to uphold their own branch of the profession, but to decry, I had almost said to defame, that which they were pleased to call *pure medicine*. With characteristic inconsistency, however, these gentlemen, who declared that the treatment of fever was at best useless, readily engaged in its management in private practice, and while they professed openly their disbelief in the efficacy of any medicines, they busily employed themselves in prescribing pills and draughts without number for their own fever patients. That they thought their treatment of some value might be gathered from their acceptance, their invariable acceptance, of pecuniary remuneration from the sufferer's grateful friends, who little dreamed the while that the hands which, with automatic movement, so readily grasped their fees, belonged to persons who held, nay, who maintained, the opinion that the treatment of fever was all a farce. Posterity will scarcely give credence to this fact, and will probably refuse to believe that such an opinion could have been advanced in what we are pleased to call an enlightened age, and an enlightened city. They will scarcely think I speak the truth in assuring them, that a spirit of medical intolerance existed to such a degree at the time of the discovery of the stethoscope, that whoever in Dublin actively occupied himself in verifying the researches of the immortal Laennec, whoever availed himself of the new resources invented by this great physician, was sure to become an object, not merely of dislike, but of animadversion and ridicule, on the part of those who ought to have exerted their influence in endeavouring to advance, and not to retard, the progress of science. Happily for the character of the country, their endeavours have been frustrated, and the cause of truth has triumphed. Happily for the students and their future patients, those teachers are now most followed who best explain and most diligently illustrate the phenomena observed by means of mediate auscultation.

LECTURE XXI.

YELLOW FEVER OF THE BRITISH ISLANDS.

IN the epidemic of 1826, we had several cases in the Meath Hospital that presented all the characters of yellow fever. This is a very remarkable fact, for this form of fever has been very rarely witnessed in this country, nor does it seem to have been observed in any part of Europe to the north of Cadiz, Gibraltar, and other towns of Andalusia. The last epidemic of yellow fever in Gibraltar is described by Louis, who with Trousseau and Cherrin was sent by the French government to investigate the disease. I shall quote from his report an account of the symptoms and post-mortem appearances which they observed, and compare it with the description of the yellow fever of 1826, printed by myself and Dr. Stokes, for the use of the pupils of the Meath Hospital.

"The disease," says Louis, "spared neither age nor sex; men and women, young and old, were alike its subjects. Those only were exempt from its influence who had been affected with the disease in a former epidemic.

"It commenced at different hours of the day, sometimes in the night, sometimes fasting or soon after eating, usually with an intense headache, accompanied by chills, shivering, pain in the limbs, and soon after pain in the back. A heat, rarely intense, succeeded to the chills, and was sometimes followed by perspiration. At the same time the countenance became red and animated; and in some cases, as it were, swollen. The eyes were red, glistening, suffused, and in many cases the patients complained of a smarting sensation in them. The thirst was intense, the anorexy complete. It was rare that the patient suffered any pain in the epigastrium at this period.

"The first symptoms, the headache, the pain in the limbs, the anorexy, the thirst, the heat, the redness, and the pain in the eyes, continued: the headache during half the disease, the pains in the limbs a little longer, and the heat, which in many cases was but slightly increased, continued so during nearly the same time.

"The pain in the epigastrium, so rare at the commencement, came on usually fifteen or twenty hours later. It was generally inconsiderable, and very few patients complained of severe or acute pain. With the epigastric pain came the nausea and vomitings, excited by drinks and purgatives in several cases, spontaneous in others. The dejections were infrequent, that is where no laxatives had been administered. The abdomen preserved its form, was supple and indolent, except in the epigastric region. The sleep was inconsiderable—some patients were restless, in some there was a good deal of jactitation during the night; others, and the smaller number, experienced, as early as the third day, a real anxiety, could not remain quiet in any posture, and in some cases there was delirium. But this symptom did not usually come on till the last day of life; and for this reason it is to be considered rather as belonging to the agony than to the disease; otherwise, with few

exceptions, there was neither prostration nor stupor. The pulse was moderately accelerated, regular, generally bearing relation to the degree of heat, which was almost always slight, as I have before said. The skin of the thorax was injected in some cases. This redness and that of the eyes diminished toward the middle period of the disease, or a little later, and new symptoms appeared. To the injection of the integuments of the chest there succeeded a slight yellow tint of that part, and the eyes were the same colour. When this colour appeared thirty-six or forty-eight hours before death, it became rapidly brighter, so as to be of considerable intensity at the time of the fatal termination. In other cases where it came on only just before death, it was slight at the autopsy, and commonly limited to the trunk. At about the same period, or a little later, the matter vomited and the discharges from the bowels, which up to that time had presented nothing remarkable, took on a certain character, which they have not in the course of the acute diseases of Paris. The dejections were blackish or blueish, and the matter vomited, from being of a yellow colour, became brown or black. At the commencement of this change of colour, the vomit was a liquid matter, more or less greyish, mixed with a greater or less quantity of mucus, in which were to be seen blackish particles, like soot.

"At this period of the disease, the uncomfortable feelings and the anxiety continued during different lengths of time, and in different degrees, the strength diminished, the temperature fell, so that the limbs were cold before the agony; in a certain number of cases there was a suppression of urine. Sometimes also we observed a sort of remission, an apparent amelioration of the symptoms, and death took place when it would least have been expected, had not experience taught us to distrust this deceitful remission. In some subjects the violence of the headache, that of the pains of the limbs, the marked febrile symptoms, the numerous vomitings, the uncomfortable feelings, the anxiety, the bright redness of the eyes, gave to the disease a truly serious aspect; whilst in others the mildness of the fever, and of the pains wherever seated, the absence of agitation and delirium, the slight diminution of the strength, impressed on the disease a character of mildness, calculated to deceive at once the patients, their attendants, and the physician. It is under this form of the disease that patients died without taking to their beds—on foot, as it was expressed by their friends. Thus Dr. Mathias, who died after an illness of four or five days, experienced no other symptoms but severe pains in the calves of the legs, and a suppression of urine. He had no nausea; he did not vomit; his mind was perfectly clear during the whole course of the disease.

"This kind of latent condition of the yellow fever does not distinguish it from the acute diseases of Paris, which also are often obscure, and their symptoms mild; but it is remarkable on account of the rapid progress of the disease, usually fatal from the fourth to the sixth day. And this latent form reminds us at once of certain facts of poisoning by arsenic, in instances of individuals who have retained their clearness and calmness of mind from the moment of swallowing the poison until their death.

"I add, that the severity of the symptoms does not correspond always with that of the lesions. Of these last, one only was constant, the specific alteration of the liver. The inflammatory state of the mucous membrane of the stomach comes next in frequency, and sometimes explains in a manner sufficiently satisfactory the symptoms that had been observed."

The following are the appearances which Louis found in the fatal cases of yellow fever at Gibraltar :—*

“The stomach was larger than natural in seven subjects, smaller than usual in three. It contained a clear or dark red coloured liquid, a blackish or perfectly black fluid, in different quantities, in three-quarters of the cases. Its mucous membrane was red, through a greater or less extent, in six cases; rose coloured or orange in eight cases; greyish, yellowish, or whitish in the others. It was thickened through a greater or less extent of surface in half the cases; softened and yellow to an extreme degree in the same number; at the same time thickened, softened, and red in a third part of the cases; mamelonated in two-thirds; ulcerated in two cases; and natural in five cases.

“The mucous membrane of the duodenum was red in a little more than half of the cases; softened in the same number; and thickened in one case.

“The small intestines contained a greater or less quantity of reddish, brownish, blackish, or perfectly black matter, in two-thirds of the cases. Its mucous membrane was slightly injected or red in spaces, in a little less than half the cases. Its consistence was more or less diminished through its whole length, or through a part of its extent only, in rather a greater number of cases. It was partially thickened in one case; in no case was it ulcerated; and Peyer’s glands were always natural.

“The large intestine was of greater size than usual in two cases. In fifteen cases it contained a matter of a wine lees colour, or blackish, or brownish, or chocolate coloured, or entirely black. Its mucous membrane was of a pale or bright red colour in five cases; greyish, yellowish, or whitish in the others. Its consistence was more or less diminished in three-fourths of the subjects. Its thickness was increased in three cases; and twice we found it slightly ulcerated.

“The mesenteric glands presented traces of inflammation in four cases; the cervical glands in one case; in another case one of the glands above the *biliary ducts* was red, softened, and very large.

“The *liver* was of greater size than natural in two cases; a little firmer than usual in three cases; a little less firm in three others. Its cohesion was increased in six cases, diminished in seven. *Its colour was altered in every case; sometimes it was of the colour of fresh butter, sometimes of a straw yellow, a clear coffee and milk colour, sometimes a gum yellow, sometimes of an orange colour.*

“The spleen was softened in eight cases, and to a moderate degree, with one exception. It was larger than usual in five cases.

“The lesions which we have thus placed before the reader *were rarely considerable, very often insufficient to explain the death*, and when this explanation was afforded, it was by a combination of several lesions.

“These lesions may be divided into two classes, some of them peculiar, or almost exclusively peculiar, to subjects dying of yellow fever; others common to those subjects, and to subjects who have died of other acute diseases. The red or black matter found in the alimentary canal, and the remarkable alteration of the liver, are of the first class, all the other lesions of the second.

“The red or black matter of the stomach or intestines not having been found in all the cases of yellow fever, it cannot be considered an anatomical character of the disease. But it is *not so with the alteration of the liver, which*

* I have intentionally omitted the very minute description of the thoracic viscera, the brain, spinal cord, &c.; suffice it to say, there was nothing observed worthy of note.

was more or less exactly the same in all the cases, and which, for that reason, ought to be considered as the *essential anatomical character* of the yellow fever of Gibraltar of 1828.

"Amongst the lesions of the second class, the yellowness and the inflammation of the mucous membrane of the stomach should be especially remarked, as well from their frequency as on account of the rapidity with which they come on. The inflammation of the mucous membrane of the stomach not having taken place in all the cases, and Peyer's glands not having ceased to be natural, it follows on the one hand, that the yellow fever of Gibraltar, of 1828, is not a gastritis, and on the other hand, that it is not a typhoid fever. This last conclusion is even more strict; for not only was there an absence of the lesions of typhoid fever in the bodies of the victims of yellow fever, but these bodies presented other lesions which are not found in the victims of the first disease, and which are peculiar to the second disorder.

"What, then, is the nature of the yellow fever of Gibraltar, of 1828, and where is the seat of it? If it be neither a gastritis nor a typhoid fever, neither is it a hemorrhage, as it has lately been said to be, for the hemorrhage did not take place in all cases. Is it a disease of the liver? Undoubtedly the liver was the organ principally and essentially affected; still we cannot regard the yellow fever as simply a disease of the liver, because its lesion, at least in the present condition of science, does not explain the febrile symptoms in the cases where this was the only lesion; and in the second place, because it is entirely insufficient to explain the death.

"As, then, a strict analysis of the anatomical appearances of the yellow fever of Gibraltar of 1828, proves the existence of a cause unequal in its operation, and of which but one effect is constant, the specific alteration of the liver, and, as in a third part of the cases, it is directly to this cause that we are obliged to refer the death, we naturally ask how does this act, through the medium of what system does it exert its influence on the economy? Is it through the nervous system; is it through the blood, in which, however, we have not detected any especial modifications?"

Let us now compare with this description, the epidemic I witnessed in Dublin in 1826. The first case I shall speak of is that of John Gall, aged 35. Admitted about the 10th January. Date of illness unknown; probably about seven or eight days. Tenderness of epigastrium chief symptom, and with it costiveness; skin hot; tongue very dry and brown in centre, edges white, a little moist; much debility; appeared stupid, but no delirium; memory uncertain; at one time he said he was two days ill; at another, for several; belly hard, full.—*Lecches to epigastrium, and purgatives with apparent relief.*—Next day he got *effervescing draughts*, and began to complain of cough.—*Blister on the chest on the following day.*—That night he became yellow, being convulsed in the abdominal muscles, and died at 5 a. m. yesterday.

Dissection 30 hours after death.—Body well made, strong, muscular; skin and conjunctivæ yellow; posterior parts livid. Dura mater yellow; no fluid between dura mater and arachnoid; considerable quantity of fluid under arachnoid, between convolutions, of amber-yellow colour; brain remarkably firm; substance white; yellow fluid in right ventricle, and also in left, in anterior cornua in considerable abundance, particularly in left. Abdomen: Liver natural; no obstructions in ducts; bile in gall-bladder; stomach of a dark purple colour universally; mucous membrane increased in thickness, bleeds when torn, is evidently a little softened, villous coat like velvet;

when in water, villousities whitish and floating. Near the pylorus we observed a very curious and beautiful appearance; the mucous membrane was here, as in other parts, of a purplish-red colour, marked in many places by rings of a white colour, and perfectly circular, and about half an inch in diameter. These rings, formed by a circle about half a line in breadth, included a space purple like the rest of the mucous membrane; and in many places intersections of these white circles were observed: white serpentine lines were also apparent in this part of the stomach. On placing the stomach in water, we discovered that these white circles and serpentine lines were formed by the extremities of villous processes, which had not a purple colour like the rest. Duodenum was also red, but the redness decreased gradually. *One intus-susception, including a portion of intestine six inches in length, was found in the small intestines. The invaginated portion of intestine was easily withdrawn from within that which had enclosed it, and there was not the slightest mark of inflammation in either.*

This is a good example of the morbid appearances exhibited by those fatal cases of fever which had been so frequent in the epidemic of 1826. We lost nearly twenty patients, in whom the symptoms ran nearly the course above detailed. In all, the abdomen became hard and tender about the epigastrium and hypochondria, and often without any premonitory symptoms indicative of the approaching danger. This hardness and *knotted* feel of the abdominal muscles, was followed by an appearance of *general jaundice of a bright yellow colour*, accompanied by uneasiness and anxiety of countenance, a very quick and hurried pulse, and coldness of extremities. Death generally took place in such cases within twenty-four hours from the appearance of the jaundice, and was preceded in some cases by general convulsions (as was reported, but we ourselves did not observe any general convulsions); in most, by spasms limited to the abdomen, and which obtained among the nurses the appropriate name of "*Twisting of the guts*," a name which agrees singularly with the intestinal intus-susceptions found in almost all. Before entering into the subject of the pathology of this singular form of fever, I shall detail a few more examples of it.

John Rochford, aged 50, was admitted into shed No. 4, with low fever; became convalescent after a few days without any regular crisis; appetite returned, and he continued well for about six days, when he relapsed. Belly a little hard, and tender to the touch; complained only of costiveness; some purgative medicine was directed, which not having the desired effect, an oil draught was prescribed, and having operated freely, patient appeared much relieved at next visit; but between 11 and 12 p. m. was seized with convulsions of belly, but not of extremities; suddenly became jaundiced, and died next morning. The tip of his nose became of a deep purple colour. The friends having taken away the body, we had not an opportunity of examining the morbid appearances.

We have had several cases in which the nose became purple in fever, and, with one exception, they all proved fatal. When the purple nose is combined with general jaundice, the patient presents a truly frightful appearance; this has happened in five or six instances. Sometimes the purple colour is limited to the tip of the nose, while in other cases it spreads from the nose to the upper portion of the cheeks. The parts about to become purple assume at first a pale appearance; this paleness is gradually converted into a livid leaden hue; and the part becomes quite purple generally in the course of twelve or twenty-four hours. It is to be observed that the parts thus affected

preserve their natural heat until shortly before death, when, of course, the tip of the nose is among the first parts to grow cold. In the case of a girl in shed No. 2, whose nose and cheeks became purple, this change took place more slowly than usual. At first the parts were observed to be covered with broad patches of a wax-like whiteness, somewhat elevated above the surrounding surface, which so much resembled urticaria that it was considered to approach, in its nature, to that eruption; the following day, however, these spots were found to have become of a red colour, and on the next day the redness was converted into a deep purple. During the whole of this time the heat of these parts was not less than that of the rest of the body. She died on the following day.

In the case of a woman, also in shed No. 2, in whom the tip of the nose and the ends of some of the toes became purple, these parts were tender to the touch; this woman recovered. Leeches were applied to the tip of the nose, and tepid stupes or poultices kept constantly applied to the discoloured parts; a small portion of the nose separated and came away in the form of a slough. These facts prove that this purple colour of the nose and other parts, *in many instances, at least*, arises from a condition of the vascular system of these parts closely allied to inflammation. We possess a drawing of a patient in whom, from the effects of cold, the tops of the fingers became purple and excessively tender when exposed even to the common temperature of the wards in winter. Great relief from pain, and some diminution of intensity in the colour was obtained by keeping the fingers immersed in tepid water. This case, which was treated by Mr. McNamara, had lasted for some weeks before admission, and yielded, but not until the lapse of a considerable time, to the employment of tepid applications, &c.

Patrick Mahon, aged 45, a stone cutter, strong habit. Admitted into shed No. 4, labouring under fever of a typhoid character. Tongue loaded; teeth covered with sordes; abdomen hard; tenderness of epigastrium, and hypochondria on pressure; complained of weakness.—*Twenty leeches were applied to the epigastrium, and purgative injections administered.* The following morning the skin and conjunctiva appeared slightly yellow; abdomen still hard; pulse weak and quick; much debility.—*Was ordered some blue pill, and to repeat the injections.*—At the next visit, the yellow colour continuing, the abdomen being still hard, and the epigastrium tender, twenty leeches were again applied, and the former medicines repeated. At four o'clock in the evening was seized with convulsions, and died early next morning. The convulsions only appeared to affect the abdomen.—Body not examined.

John Gaven, aged 22. This man's case differed in no material circumstances from the preceding cases.—*Dissection twenty hours after death.* Body extremely well made, strong, and muscular. Nothing morbid in head or thorax, except dilatation of some bronchial tubes. Abdomen: *five intussusceptions in small intestines, without any adhesion or marks of recent inflammation*; other parts of the intestines considerably contracted; mucous membrane of stomach, from cardiac orifice to within about two inches of the pylorus, of a brownish-red colour. Here the mucous membrane yields readily to the back of the knife, and may be scraped off in a semi-fluid state; it contains several patches of ecchymosis. The whole of the intestinal tube, with the exception of the duodenum and the lower half of the large intestines, has its mucous membrane of a dark red colour, with numerous ramifications of vessels engorged with blood. In many parts the mucous membrane is

very soft, and almost semi-fluid. *Liver perfectly healthy: no obstruction in gall-duets.*

As time will not permit me to detail more dissections of this truly curious and fatal form of fever, I shall merely sum up some of the principal points connected with its pathology. 1st. In none did we find inflammation of the liver, or obstruction of the gall-duets. 2dly. In *all*, evident marks of inflammation were found in the mucous membrane of the stomach, such as redness, softness, &c. 3dly. In almost every instance, we found one or more intussusceptions in the small intestines. 4thly. All these were without any mark of inflammation of the serous membrane, and the invaginated portion of the intestine could be always easily drawn out of the other. 5thly. In *several* we found effusion of a yellowish or amber coloured fluid between the arachnoid and pia mater, at the base of the brain, and sometimes in the ventricles, but in these only in small quantity. 6thly. In none did we find inflammation of the brain or its membranes. 7thly. We found the spleen very much enlarged in almost all. When the spleen, in acute diseases, is thus engorged and distended, it is invariably softer than natural. In but one case did we find a considerable quantity of a dark red fluid in the stomach, together with a good deal of a substance resembling coffee grounds, and in this case the mucous coat of the stomach was in many places of a very dark colour, and a slimy consistence, so that there could be but little doubt concerning the origin of the contained fluid, and the coffee grounds substance, which must have proceeded from the diseased and almost disorganised mucous membrane. Such have been the principal appearances observed during the dissection of about fifteen fatal cases of fever combined with yellowness of the skin. The following cases will convey a more exact idea of the symptoms which characterise this form of fever than those already related, which proved too suddenly fatal to allow a full development of the symptoms.

Peter Kelly, aged 28, on the 29th December was admitted into No. 4 fever shed; stated that for two days previously he had severe cough without expectoration; pulse 110, strong; face flushed; tongue white, moist; pain across forehead, and general distress; great tenderness of epigastrium and right hypochondrium; costive; thirsty; abdomen hard: on examination no morbid rale was perceptible; respiratory murmur natural.—30th Dec. *Venæsectio ad ̄xv. Hirudines xx. epigastrio. Pilulæ purgantes et mistura purgans.*—31st. Cough very severe. *Vesicatorium pectori. Mistura pectoralis.*—1st January, 1827. During last night became jaundiced; considerable distress this morning; black stools; great tenderness of epigastrium and right hypochondrium; cough very troublesome. *Venæsectio ad ̄xxii. Hirudines xxx. hypochondrio et epigastrio. Abradantur capilli et applictur vesicatorium vertici. Sumat omni horâ calomelanos grana duo.*—2d. January. Much relieved; skin not nearly so yellow; tenderness greatly diminished; some sweat last night. *Repetantur pilulæ.*—3d. Considerably improved; skin nearly natural. 4th.—Mouth affected with mercury; skin natural. *Omittantur medicamenta.* 5th.—Removed to convalescent ward.—7th. Convalescence continues, having now no complaint but slight soreness of mouth.

Here the yellow colour appeared about the fifth day, and sweat attended with much relief on the seventh day. The symptoms chiefly worthy of notice are, the violence of the febrile reaction, pain of forehead, great tenderness of epigastrium and right hypochondrium; blackness of stools, and hardness of the belly. We shall just now see the great importance of these symptoms in determining the true nature of the disease.

January 14th.—Thomas Kearney, aged 38, labourer; has been ill for eight days; was first attacked with rigor and pains of loins and limbs, which still continue. He also complains of cough and pain of chest; head first attacked on fifth day; was taken into hospital the following day; got some purgative, which operated powerfully. Present symptoms: skin dry and hot; eyes and skin *yellow*; great pain of head; tongue dry and white; pulse 60; the colour of stools very dark; epigastrium tender.—January 15th. *Applicentur hirudines xx. epigastrio et vesicatorium pectori. ℞. Pilulæ hydrargyri, gr. ix.; extracti hyoscyami, gr. vi.; M. in pilulas tres divide; sumat i. ter in die. Habeat haustus effervescentes cum carbonate ammoniacæ, et enema emolliens vespere.*—Jan. 16. Pain of chest and cough removed, and pain of epigastrium diminished since the application of leeches, which still continue bleeding: ordered to be stopped by the application of caustic; tongue moist, looking like mercurial ointment; pulse 60, strong; countenance much improved; stools much more natural; yellowness nearly gone; sweated much. *Repetantur pilulæ hydrargyri et extracti hyoscyami.*—January 17th. No fever; yellow colour quite gone; many loose stools. *Omittantur medicamenta.*—January 18th. Convalescent.

The state of the pulse in this case was remarkable. It did not exceed 60 at a time when the existence of many other symptoms left no doubt of the febrile and inflammatory nature of the complaint.

December 30th, 1826. Esther M'Quillan, aged 33. Complains of general pains; has been subject to violent pains for the last three years, after having laboured under fever in Cork-street Hospital; was there also about four months ago, and was discharged cured. Present state: great headache; tongue brown in centre; pulse small and weak; great tenderness of abdomen on pressure; bowels very free; blooded last night for cough and stuffing of chest; finds herself much relieved; blood slightly buffed, no separation of serum; respiratory murmur natural; complains of pain across her back. *Applicentur hirudines xx. epigastrio.* December 31st.—Tongue parched, furred, and brown in centre; tenderness of epigastrium still remains, but much diminished; is very slightly jaundiced; leech-bites bled well; pulse 100, regular; great thirst; pains of joints and small of back excessive, and preventing motion in bed; breathing free; urine very light coloured. *℞. Nitratis potassæ, ℥ij.; decocti hordei, lb. ij; acidi nitrici diluti, ℥j.; misce; consumatur in die.* January 1st, 1827.—Colour more yellow; great tenderness of epigastrium and right hypochondrium; pains as before; fever unabated. *Habeat calomelanos gr. iij.; opii gr. $\frac{2}{3}$, ter in die; Misturæ camphoræ ℥j. ter in die.* January 2nd.—Pulse 72, weak, at times almost imperceptible, but regular; respiration easy; yellow stools, passed under her; belly very tense; abdominal muscles contracted and hard; tongue black and parched; raves, but is sensible when spoken to; lies on side. *Repetantur pilulæ et mistura; applicetur vesicatorium hypochondrio; vini ℥vi.* January 3rd.—A good deal of cough; raves continually; yellowishness deeper; many yellowish stools passed under her; debility much increased; thirst continues; tongue black and parched; heat natural; tremor; pulse 84; blister rose but little; deglutition impeded by a spasm; just before visit was seized with a fit, attended with spasms and rigidity of joints, which lasted about a minute; feet cold. *Vini rubri ℥vj.; applicentur sinapismi pedibus; repetatur mistura camphoræ.* January 4th.—Sensible when spoken to; puts out tongue when desired; but at all other times raving; seems to suffer extremely when joints are moved; frequent tremor and shuddering; rested scarcely any; other

symptoms as yesterday; some swelling of ankles. *Applicentur vesicatoria suris; vini* ʒvj.—January 5th. Moaning and raving during the whole night; no vomiting; cough looser; slept a little this morning; stools yellow; tongue parched; blisters rose well; drinks abundantly; less yellowness; no headache; eyes suffused; pulse 84, scarcely to be felt, regular; no coldness of extremities; flatulence. *Repetatur vinum*. January 6th.—Slept well; no raving; countenance improving; fever much diminished in every respect. January 7th.—Tongue clean; pulse 80, stronger than before; a large purple spot, not elevated, occupies the whole of the outside of right instep; it is in some places vesicated; appetite good; slept well; smaller spots on other foot; camphorated spirit to be applied to spots. *Habeat sulphatis quinquæ granum ter in die*. January 8th.—Edges of large spot more vesicated; whole surface has a redder and less purple colour; three stools during night; little sleep. *Repetantur pilulæ sulphatis quinquæ et vinum*. January 9th.—Redness of right eye, not painful; foot better. *Applicentur hirudines ii. conjunctivæ*. January 10th.—Convalescent; remained for about a week, and was discharged cured.

The symptoms of this case were very alarming; so much so, indeed, that on the 2nd and 3rd of January we had little expectation of her recovery. At this period the involuntary discharge of stools, the extreme weakness of pulse, black parched tongue, general debility, raving, tremors, spasmodic affection, which supervened when she attempted to swallow, and finally, the *hard and knotted state of the abdominal muscles*, together with a fit of general tonic spasms; all these symptoms, combined with the yellow colour of the skin, rendered her recovery very improbable. The treatment was in the commencement antiphlogistic. The nitre was prescribed in order to relieve the rheumatic pains; but on the following day it was abandoned, and a preference given to calomel and opium for obvious reasons. Nitre does not act favourably in cases where much debility is present, or where the stomach is weak.

In several of the cases attended with jaundice which proved fatal, the symptoms were very similar to those described. The case of McQuillan may be looked on as presenting a good example of this peculiar species of fever. *In her case, as well as in the several of the fatal cases, the alvine discharges were of a healthy colour; and in several of the latter the bile found in the gall-bladder after death was in its properties quite natural.* About one-half of the persons so affected raved, betrayed great restlessness, and their countenance had a peculiar expression of anxiety; others seemed in perfect possession of their intellectual faculties to the last, but at the same time appeared in a most nervous, irritable, and desponding state of mind. They could not rest for a moment tranquil, but tossed their arms about, and regarded their attendant with a look expressive at once of *nervous* suffering and despair. Many vomited very often; all complained of extreme tenderness of the epigastrium.

Here I may observe that, in the epidemic of 1826, we opened many bodies in which peritoneal inflammation might have been expected, judging from the *extreme* epigastric and abdominal tenderness during life: and yet we found no marks of peritonitis whatsoever. The large *purple spot* in the instep seemed at first of a similar nature with the purple colour of the nose and lips before described; it proved, however, to be erysipelas, and ended in vesication. It differed from common erysipelas in its dark livid purple colour, and in having a well defined abrupt boundary, and in the colour disappearing but little on pressure. In fact, it seemed to be as it were intermediate between purpura

and erysipelas. The advantage of wine and stimulants towards the conclusion of this fever was very apparent.

January 15th, 1827. Robert Farmer, aged 19. Has been ill five days; was employed in a brewery, where he was exposed to hot steam, producing a copious perspiration, during which he drank a great quantity of cold beer; was immediately seized with a violent rigor and fulness of head; the rigor lasted for an hour; a comparative calm ensued. The head, however, still continued uneasy; loss of appetite followed; but he endeavoured to work for two or three days, when he was obliged to remain in bed; has been in a violent heat since, unless he gets a cold drink, which causes a rigor; was admitted into hospital yesterday. *Previous to this* had taken no medicine.

Present symptoms: violent pain or rather fulness of head; throbbing of temporal arteries; pulse 110; thorax free from pain; no cough; epigastrium and abdomen very tense; no tenderness on pressure; skin, hot, dry, and tinged yellow; tongue, white and dry, somewhat moist at edges; got some purgative medicine, which procured two stools, fetid, and of a dark colour; urine natural. *Applicentur hirudines xx. temporibus.* *℞. Liquoris acetatis ammoniac, aquæ fontanæ, singulorum, ʒij.; tartari emetici, granum; Syrupi ʒj. misce. sumat ʒss. omni horâ.* *Habeat enema emolliens vespere.* January 16th.—Leeches were applied at 6 p.m.; many still bleeding; eyes and skin less yellow; headache less; pulse 70, regular; a slight tendency to diaphoresis. *Repentantur medicamenta ut heri.* January 17th.—Not much headache; heat and pulse natural; much debility; tongue clean and moist; countenance improved; no appetite; bowels free; convalescent. January 26th.—Left hospital the day before yesterday; and that evening experienced rigor and headache. Tongue white and furred; pulse 100; skin not very hot; abdomen soft; bowels free; great thirst; no headache at present. *Habeat haustus effervescentes cum carbonate ammoniac.* January 27th.—Respirations 36; pulse 120; abdomen soft and natural; a good deal of headache; thirst; heat of skin; flushing of face; tongue as yesterday. *Applicentur hirudines xx. temporibus.* January 28th.—Head somewhat relieved; bled all night from leech-bites; much tenderness of epigastrium; pulse 125; great thirst; no vomiting; some yellowness of skin, but not of eyes. *℞. Pilulæ hydrargyri, gr. ix.; extracti hyoscyami. gr. vj. misce; fiant pilulæ tres; sumat unam quartis horis.* January 29th.—Fever diminished; was extremely weak last night, and had great distention of belly, with swelling and tenderness; this attributed to taking too large quantities of drink; was relieved by a large oil injection three times repeated; very little yellowness to-day. *Habeat haustus effervescentes cum carbonate ammoniac.* January 31st.—Skin hot; pulse 110, rather weak; all the symptoms exacerbated since yesterday; much thirst; tremor; no cough nor tenderness of belly; no headache nor raving; but little sleep; respirations 40; bowels free; much nausea, but no vomiting. *Habeat haustum oleosum; repetantur haustus effervescentes cum carbonate ammoniac.* February 1st.—Face flushed; no headache; a good deal of epistaxis last night; dry burning heat of skin; tongue very red at tip and edges; parched in centre; vomited last night; much thirst; no tenderness of epigastrium; respirations 36; pulse 112; no cough; complains at times of sense of distention of stomach. *Habeat mixture camphoræ cum magnesiâ, ʒj. ter in die.* February 2nd.—No fever; pulse 72. Convalesced slowly, and was dismissed cured.

Here the crisis of the relapse was better marked than that of the first attack, and occurred on the ninth day of his relapse. One of the most prominent

features of this fever was the distended state of the epigastric region, in the first attack unattended with tenderness, but in relapse accompanied by much epigastric tenderness. It is probable, therefore, that the distended state of the epigastric region proceeded in both instances from the same cause, namely inflammation of the mucous membrane of the stomach. We have already seen that this inflammation may, and generally does produce very great tenderness; this case, however, seems to prove that inflammation of the mucous membrane of the stomach may occasionally exist without producing tenderness. We have found both the extract and tincture of hyoscyamus extremely useful in abating irritability and procuring sleep in the advanced stages of fever. In the fevers attended with jaundice, we were induced to combine it with mercurials, from observing the frequent occurrence of intus-susception in the fatal cases—still bearing in mind that means calculated to abate the inflammation of the stomach and intestines, by lessening the cause, would strike at the root of the spasm, and thus prove the best antispasmodics. This plan has been successful in several instances, but in the majority of the yellow cases, we regret to say that the progress of the disease was so sudden, most terminating in twenty-four hours after the appearance of the jaundice, that all our efforts proved ineffectual. In the second report we made will be found the history of the dissection of several of those cases which occurred after February. It is not to be supposed that the report affords specimens of all the varieties of fever treated during the time it embraces—we have omitted to detail any but those calculated to convey an accurate idea of the general character of the epidemic and its peculiarities, omitting any account of the more ordinary forms of maculated and typhus fever, which were not unfrequently observed. It concludes with some remarks on that form of fever which was accompanied by jaundice.

Cases of probably a similar nature have been observed by Dr. Cheyne and others in former epidemics, but in no other epidemic were they so frequent or so fatal in this city. Those who are familiar with the symptoms and morbid appearances observed in the yellow fever of America, the West Indies, and of Spain, will at once perceive many striking points of resemblance between yellow fever, properly so called, and that variety of fever we have described. In both the yellow colour depends upon the presence of bile, and in both the absorption of bile into the system seems independent of hepatic inflammation or obstruction in the biliary ducts. We are aware that Tommasini, in his excellent work upon the fever which occurred at Leghorn in 1804,* proves that the liver is inflamed not unfrequently in yellow fever, *and he supposes* that, it is inflamed in all cases, arguing that where no very visible or external marks of hepatic inflammation have been observed, still inflammation may have existed in the internal parts of the liver, attacking chiefly its vascular system and the *pori biliarii* (Page 239.) As, however, no such inflammation to our knowledge has been detected in those cases of yellow fever which present an apparently healthy state of the liver, and as the most accurate descriptions of the morbid anatomy of yellow fever with which we are acquainted† report a healthy state of the liver in the majority of cases, we must, for the present at least, consider the jaundice of yellow fever as independent of hepatitis.

* Sulla Febbre di Livorno, e sulla Febbre Gialla, &c.

† See Laurence's very accurate Dissections of subjects dead of the Yellow Fever, made at New Orleans during the years 1817–18–19.—*Philadelphia Journal*, vol. i. new series.

An inflamed state of the mucous membrane of the stomach, often amounting to its absolute disorganization, is the most constant and the most essential morbid appearance in yellow fever :—a similar state of the duodenum is likewise frequent ; now in both these respects our cases agree with yellow fever, except indeed that in the latter the disorganisation of the mucous membrane is greater ; still, however, this is only a difference *in degree* ; and in one of our cases we have seen that the disorganization of the mucous membrane was fully equal to that described in yellow fever attended with the black vomit ; and in that case the stomach contained matter very similar to, if not absolutely identical with, the black vomit. We should recollect also, in comparing these two forms of disease together, that in many instances of yellow fever there is no black vomit, and the inflammation has in such persons been found to have attained a degree not greater than was observed in our cases. The tenderness of the epigastrium, so prominent a feature in yellow fever, occurred in all our patients ; and, if space permitted, I could point out many other circumstances of similarity between these two forms of fever. It may appear to many ridiculous to maintain a similarity between these cases and yellow fever, a disease of warmer climates, and which commits such fearful ravages wherever it appears. I need, however, only refer to the works of Tommasini, Bancroft, Dr. James Johnson, Bartlett, and Clymer, which contain ample proofs that even in the warmest latitudes epidemics of yellow fevers are always mixed with fever of a bilious character, but of a milder type, a circumstance which renders it highly probable, that were such an epidemic influence at any time, from a particular combination of circumstances, to spread to temperate latitudes the reverse would happen, and this influence would then produce an epidemic of bilious or gastric character, with comparatively few cases approaching in violence to yellow fever.

Tommasini and the best modern pathologists consider it as now placed beyond all doubt that yellow fever cannot be considered as a specific disease, but merely as the maximum of bilious or gastric fever. By some it has been considered as a variety of *remittent*, but nearly all the late writers agree in regarding it as a *continued* fever.* In proportion to the warmth of the climate these fevers increase in intensity. Thus, in Cadiz and Gibraltar we need not be surprised at the occasional appearance of the yellow fever, approaching in violence to that of the southern parts of North America and the West Indies. At Leghorn the resemblance, although still striking, was not so perfect : and again, in the bilious epidemics of France, Holland, and Germany, the difference, as to intensity, is still greater, (Tommasini, 81, 82, 83), but still the disease, in its essential characters, remains the same in all, and the same symptoms, and the same morbid lesions are found ; they differ only in degree. Hitherto we have not made any remarks on the frequent occurrence of spasmodic action of the intestines, as proved by the intus-susceptions so constantly observed in our cases ; a *circumstance, we believe, peculiar to those cases, for we have not met with any account of a similar occurrence in other epidemics*. How far such spasms, either by directly causing a temporary constriction of the ductus communis choledochus where it enters the intestine, or by extending to that duct itself, may have contributed to obstruct the passage of the bile and produce the jaundice, is a question worthy of consideration.

On looking over my papers, I found the following notes of a clinical lecture delivered at the Meath Hospital in the year 1827. As they have especial

* Clymer on Fevers, Philadelphia, 1846, p. 349.

reference to the subject under consideration, I shall make no apology for introducing them in this place, merely premising that they are printed as they stand in the manuscript, and must be regarded as the *heads* of a lecture, and not as conveying all that I may have said on the occasion :—

In fact there is not so much difference between the diseases of Ireland and warmer countries as has been imagined. They differ, it is true, as to *their degrees*, but not as to their pathology.

It was an opinion long ago advanced by the late Dr. Whitley Stokes, that almost all fevers pass into each other—thus, intermittent may become continued, and typhus fever, perhaps, but an inferior grade of plague. Be this as it may, each particular epidemic *has a grade peculiar to itself*. The present fever in Dublin, the most worthy of notice we have had here, strongly proves that our diseases differ only in degree from those of warmer latitudes. We have had numerous cases which in their symptoms and their morbid anatomy agree essentially with the *yellow fever*. This is an opinion I have never before expressed, as I was unwilling to do so until after careful examination and study. Passing events always make a deep impression when the attention is *properly directed towards them*. I stand here to improve you, if I can, in the pathology and practice of physic, and scruple not to deviate a little from my course, if that deviation be calculated to awaken your attention to an important subject.

1st. In both, patients become yellow from absorption of bile into the system ; but observe, in epidemics of yellow fever it never happens that all, or even most, of the cases turn yellow.

2nd. These yellow cases are here equally fatal.

3rd. Tenderness of epigastrium, and vomiting in both.

4th. The strongest die.

5th. Jaundice does not depend on hepatitis in *either*.

6th. Nor on any *permanent* obstruction in gall ducts.

7th. In both, the essential character of the disease is a violent inflammation of the mucous membrane of stomach and duodenum ; which becomes dark purple, soft, and semifluid.

8th. Black vomit in true yellow fever consists of a sanguineous fluid, the mixed vitiated secretion of the stomach and the blood forming the coffee-grounds appearance. This black vomit we found in one of our patient's stomach.

9th. Enlarged state of the spleen.

What is the cause of yellowness in yellow fever? Absorption of bile. But what causes bile to be impeded—there is no obstruction in the liver itself—as in hepatitis, or in the ducts—as in gall-stones, &c. ?

It has been ascribed to *vomiting*, but this is not the true cause.

1st. It has appeared in yellow fever when there was no vomiting.

2nd. We do not find that constant vomiting, as in sea-sickness, however long it lasts, produces jaundice. On the contrary, *vomiting* is *often* used as a cure for jaundice, as it produces a greater flow of bile from the ducts.

The opinion of Broussais seems most correct, that the yellow colour depends solely on the *violent irritation of the duodenum*, which is propagated to the secreting organ, the liver.

This is nearest the truth, but still does not seem quite satisfactory. If the *irritation* or inflammation of the duodenum was propagated to the liver, we must expect to find that organ inflamed. *However, no such thing occurs in either case.*

Now our *dissections* have, I think, thrown a new light on the subject, and shown the true nature of the obstruction to the flow of the bile which exists in this complaint. In *almost all* the cases of fever with jaundice which have proved fatal, we have found one or more *intus-susceptions of the small intestines*, without any inflammation of the invaginated part (serous membrane). Now let us consider what aid we receive from the finding of these intus-susceptions, towards explaining the origin of the jaundice. But, first, what is the origin of spasm? Inflammation of the mucous membrane of duodenum, and small intestines, and stomach. In dysentery we find evident spasm of large intestines from inflammation, tenesmus, &c. Well, then, having rendered it probable that spasm exists, depending on inflammation, how does this bear on jaundice? We have all heard of spasm of the gall-ducts causing jaundice, and best treated by opium, baths, &c.

We must suppose spasm in the duodenum capable of being propagated to the ducts, or of directly shutting the duct.

This spasm, constantly occurring, produces, every time it takes place, a constriction of the duct, while the quantity of bile is not diminished, the consequence of which is jaundice.

Having thus proved a remarkable coincidence between these diseases, if not their absolute identity, let us see how their treatment agrees. We have found by experience that the only treatment which will serve patients in these cases, is that which has been adopted in yellow fever by the most enlightened and experienced physicians—depletion by lancet and leeches, and large doses of calomel, blue pill, hyoseyamus, &c.

At the time these remarks were penned, I, in common with others, believed that all efferent ducts possessed a vital contractility, because we had observed many phenomena which could only be explained on this supposition. Since then, physiologists have applied themselves to the solution of this question, and it is now generally admitted that these ducts do possess the power of contraction, for which they are indebted to a muscular coat. I shall here quote from the highest authority we possess:—

“The *efferent ducts* of glands are lined by a mucous membrane, which has on its exterior an extremely thin layer of muscular substance. The existence of muscular fibres cannot, it is true, be demonstrated anatomically, but physiological observations place it beyond dispute. The efferent ducts of most glands have the power of contracting when irritated. The contractile power of the ductus choledochus in birds was known to Rudolphi. By irritating mechanically, or by galvanism, the ductus choledochus of a bird just dead, I have frequently produced a very strong contraction of it, which continued some minutes, after which the duct resumed its previous state. I have often excited strong local contraction of the ureters likewise, both in birds and in rabbits, by the application of a powerful galvanic stimulus. Tiedemann also has seen motions in the vas deferens of a horse ensue on the application of a stimulus. It appears, indeed, that periodic vermicular motions are performed by the efferent ducts, at least by the ductus choledochus in birds; for once, in a bird just killed, I observed contractions of the duct to occur regularly in pauses of several minutes; the tube dilating again in the intervals. It was here remarkable, that the contractions took place in an ascending direction, namely, from the intestine towards the liver; which seems to throw some light on the mode in which the bile at certain times, instead of being expelled into the intestines, is retained and driven into the diverticulum of

the duct, namely, the gall-bladder ; the complete closure of the mouth of the duct contributing, perhaps, to this effect.

"The discharge of the bile from the gall-bladder during digestion results probably from the mere pressure of the surrounding parts, and the action of the abdominal muscles, while the mouth of the duct is open : for I doubt if the bladder is contractile : I could produce no contraction of it in mammalia and birds, even with the most powerful stimulus of a galvanic battery ; and in this respect it differs from the other diverticula of efferent ducts, namely the urinary bladder, and the vesiculæ seminales, which it resembles in all its characters.

"Dr. G. H. Meyer however states that, by means of a galvanic battery of fifty pairs of plates, he has caused the gall-bladder of an ox to contract so as to diminish its capacity one-fourth.

"How far the contractility of the ducts may contribute to the frequently sudden expulsion of the saliva and tears, is a question which I mention merely as requiring further investigation. I may, in conclusion, remark that, since the contractility of the ducts of glands is proved experimentally, *the spasm of these parts, spoken of by physicians, ceases to be a mere hypothesis.*"*

It may be well now briefly to consider how far the Dublin fever of 1826-7 agreed with that since observed at Gibraltar, by Louis.

The prominent symptoms in the yellow fever of Gibraltar were, flushing of the face, headache, suffusion and pain in the eyes, pains in the limbs, thirst, and loss of appetite ; *it was rare that the patient complained of any pain in the epigastrium at first, but this generally came on fifteen or sixteen hours from the commencement of the disease, and was then inconsiderable, and very few patients complained of severe or acute pain.* The abdomen preserved its form, was supple and indolent, except in the epigastric region. The yellow appearance of the skin did not come on *till late* in the disease, and was *seldom very intense*, and it was about the same period *that the vomiting and dejections assumed their peculiar character ; the dejections were black or bluish, and the matter vomited, from being of a yellow colour, became black or brown.* You will at once perceive that the symptoms which attended the cases of yellow fever we witnessed in 1826, indicated a more intense disease of the abdominal viscera—in *all* there was tenderness over the epigastrium, which in some was excessive—black vomiting did not occur in all, but even in the yellow fever of tropical countries it is not constant ; but the symptom which presented the greatest difference in the two epidemics was the yellowness of the skin, which in the fever of Gibraltar came on towards the latter period of the disease, and was *seldom very intense*, but in our fever it came on suddenly, immediately after the tenderness of the epigastrium was complained of, and was in all very intense. This shows that whatever lesion produced the yellowness in the Gibraltar fever was either different in kind or in degree from that which caused it in ours, and I think we cannot doubt but that it was here produced by spasm of the ducts leading from the liver and gall-bladder.

It is well known to pathologists since the time of Broussais, that jaundice is as frequently produced by duodenitis as hepatitis, if not more so—but I do not think that the explanation he gives is applicable to our cases. He concludes that when the mucous surface of the duodenum is thrown into a state of excitement, we may have a consequent affection of the liver, for the duodenum bears the same relation to the liver as the mouth does to the

* Müller's Physiology, translated by Baly, 2nd edition, p. 520.

parotid gland; and we know that an irritation of the orifice of the ducts leading from this and other salivary glands is immediately followed by an increased flow of their secretions. But our dissections have shown that the small intestines were affected not only by inflammation, but were acted upon by violent spasms, producing invaginations of different portions of the canal; and there can be no doubt that the ducts (possessing such considerable vital contractility) participated in these spasms, and thus prevented the flow of bile into the duodenum as effectually as if they were tied by a ligature, or their canals obstructed by calculi, and this explanation obtained great support from the fact, that the jaundice came on *suddenly* in most of the cases, *and was always preceded, or accompanied, by violent and convulsive contractions* of the abdominal muscles and intestines.

There is another point to which I am anxious to direct attention.

The yellow fever I have now described occurred in the course of an epidemic of continued fever, whose type was a severe and very fatal form of gastro-duodenitis. Does not this circumstance tend to confirm the opinion of Tommasini and others, that yellow fever is but a more severe form of the gastric variety of typhus? The appearance of the liver described by Louis has not been noticed by other pathologists, and cannot be considered the essential *anatomical character* of yellow fever generally; for we read that Rush, Lawrence, Jackson, and Ashbel Smith, the learned writers on the yellow fever of America, seldom found the jaundice connected with liver disease, but that in all cases there was inflammation of the digestive surface: and in the late epidemic of yellow fever which prevailed in Martinique from 1839 to 1841, M. Ruiz states that he observed the yellow appearance of the liver, described by Louis, only in two instances, and that this organ, like the rest of the solid viscera, was very often gorged with blood.

Dr. Nott says:—"Of eight cases dissected during the epidemic of 1843 in Mobile, the livers in two only corresponded with the description of M. Louis. They were pale, and when torn resembled very closely gingerbread or new leather; and the six others were of a dark blue or dark chocolate, presenting different shades of colour, and, instead of being dry, they were excessively engorged with blood. The latter cases correspond with the description given by Dr. Hulse of the cases dissected in the Marine Hospital at Pensacola in 1841. Of the eight dissections in 1844, the livers of four corresponded with the description of Louis, two were of a dark olive, and two were perfectly natural. Taking the whole sixteen cases collectively, six were some shade of yellow, dry and friable; two olive; two normal; and six darker than natural, and much engorged." Dr. Nott also thinks that Louis has fallen into another error in supposing this liver to be peculiar to yellow fever, for he has repeatedly met with it in individuals dying of other diseases, and who never had yellow fever.

In the Martinique epidemic the principal pathological appearances were the following:—"The stomach contained matter of a black colour, generally in great quantity, and the mucous membrane was coloured by this substance; but when the contents were removed, and the mucous membrane washed, he found that it presented a beautiful rose-coloured hue, extending all over its surface, and not produced by distinct vascular arborizations. In the midst of this redness, he observed several round and distinct spots, produced by the effusion of small quantities of dark-coloured blood, having all the appearance of spots of *purpura hemorrhagica*. The mucous membrane was neither thickened nor softened, but was evidently much more easily detached than in the

natural condition. The small intestines contained a greyish white matter, particularly the jejunum; the mucous membrane presented precisely the same appearance as the stomach, but the hemorrhagic spots were more numerous and much larger. The glands of Brunner were in a few cases enlarged to the size of millet seeds, but in no instance were the glands of Peyer in the least altered."

During the prevalence of the yellow fever in 1826-7, a captain of a West Indian vessel was admitted into hospital with the disease. He had yellow fever in Jamaica, and stated positively that he was, when under our care, affected in precisely the same manner as he had been in Jamaica; and he also remarked that the other patients seemed to labour under exactly the same kind of fever as he had then witnessed.

The correctness of the views here propounded as to the identity of the cases of yellow fever occurring in the Irish epidemic of 1826-7, with the yellow fever of warmer climates, has been singularly and remarkably proved by the Scotch epidemic of 1843-4, in which cases of yellow fever were very frequent. Dr. Arnott, physician to the Dundee Infirmary, says:—"The similarity of the symptoms during life, and of the morbid appearances observed after death, so nearly agree with the description of the yellow fever of the West Indies, and with the minute accounts of the Gibraltar epidemic of 1828, given by Louis, as to leave little doubt on my mind, that the only difference between these diseases and the Dundee epidemic, if difference there be, is a difference in degree and not in kind." And Dr. Cormack, in his essay on this fever, remarks, "That in all stages of this disease, it is the affection of the stomach that affords the most distinguishing and important symptoms. As it advances, an unconquerable irritability of this organ comes on. Whatever is swallowed, whether solid or fluid, of whatever quantity or quality, is immediately rejected by vomiting. An almost incessant retching takes place even without any extraneous irritation, which commonly, on the third day, ends in what is called the black vomit, the most hopeless of all the symptoms attending it."

In June, 1846, during the very hot weather which then prevailed, I saw two fatal cases of yellow fever. The first was a very athletic gentleman, 24 years of age, who overheated himself by violent exercise, after having travelled without resting during the night. Being exposed to a thorough air he was chilled, and having spent a restless night, on the following day was attacked with intense fever, nausea, vomiting, thirst, pain in the head, &c.; he became yellow on the third day, and died on the fifth, without black vomit.

The second I saw with Mr. O'Reilly of Sackville-street. It was the case of a captain of one of the Liverpool mail packets, who got a chill in the railway carriage coming from Kingstown, when in a perspiration, and was attacked next day with violent fever; gastric and cerebral symptoms predominated, and about the sixth day he became tympanitic, had black vomit, and died on the eighth day.

I also saw a third case in the summer of 1847, in a young girl, aged about 14, which terminated fatally; the only morbid appearance to be observed on post-mortem examination which could have any connection with the disease, was that the gall-bladder was completely empty of bile.

LECTURE XXII.

SCARLATINA.—EPIDEMIC OF 1801-2-3-4.—EPIDEMIC OF 1834.

It is my intention to-day to make some observations on the scarlet fever which now prevails as a destructive epidemic, in Dublin and many other parts of Ireland.* The history of such epidemics is very interesting, and tends to shed much light, not only upon the changes which diseases undergo, but upon the fluctuations of medical opinions and treatment.

In the year 1801, in the months of September, October, November, and December, scarlet fever committed great ravages in Dublin, and continued its destructive progress during the spring of 1802. It ceased in summer, but returned at intervals during the years 1803-4, when the disease changed its character; and although scarlatina epidemics occurred very frequently during the next twenty-seven years, yet it was always in the simple or mild form, so that I have known an instance where not a single death occurred among eighty boys attacked in a public institution. The epidemic of 1801-2-3-4, on the contrary, was extremely fatal, sometimes terminating in death so early as the second day, as appears by the notes of Dr. Percival, kindly communicated to me. It thinned many families in the middle and upper classes of society, and even left not a few parents childless. Its character seems to have answered to the definition of the *scarlatina maligna* of authors, for a description of which I beg leave to refer you to the *Cyclopædia of Practical Medicine*, where you will find an article on the subject by Dr. Tweedie. In making this reference, however, I do not wish to be understood as expressing my unqualified approbation of the article in question, for I must in candour confess that it falls far short of what we might have expected from a physician of Dr. Tweedie's learning and experience.

The long continuance of the period during which the character of scarlet fever was either so mild as to require little care, or so purely inflammatory as to yield readily to the judicious employment of an antiphlogistic treatment, led many to believe that the fatality of the former epidemic was chiefly, if not altogether, owing to the erroneous method of cure then resorted to by the physicians of Dublin, who counted among their numbers not a few disciples of the Brunonian school; indeed, this opinion was so prevalent, that all those whose medical education commenced at a much later period, were taught to believe that the diminished mortality of scarlet fever was entirely attributable to the cooling regimen, and to the timely use of the lancet and aperients, remedies interdicted by our predecessors. This was taught in the schools, and scarlet fever was every day quoted as exhibiting one of the most triumphant examples of the efficiency of the new doctrines. This I myself learned—this I taught; how erroneously will appear from the sequel. It was argued, that had the cases which proved fatal in 1801-2 been treated by copious depletion in their very commencement, the fatal debility would never

* This lecture was delivered during the session of 1834-5.

have set in, for we all regarded this debility as a mere consequence of previous excessive reaction. The experience derived from the present epidemic has completely refuted this reasoning, and has proved that, in spite of our boasted improvements, we have not been more successful in 1834-5 than were our predecessors in 1801-2.

Before I detail more particularly the symptoms that accompany the present epidemic, I wish to enter a little at large into the subject of the changes and variations which the same disease is observed to undergo at different periods of time. This is a topic which occupied some of the master minds of antiquity, and upon which the greatest of modern physicians, the illustrious Sydenham, bestowed considerable labour. It has been too much neglected of late, and consequently I consider it my duty to call your attention to it, and I cannot do this better or more forcibly than by communicating to you a literal translation which I have made from the German of my friend Dr. Autenrieth's observations on this subject. The task of translation is always not only difficult but irksome; but if, as in the present instance, I can by this means convey to you valuable information not before presented to my class, or to the public in England, I never decline the labour. What I am now about to read is indeed most important, and well deserves the deep attention of every practical physician.

"The third cause, connected with time and capable of modifying diseases, is of infinite importance, both in a theoretical and practical point of view, but has seldom attracted much attention. Its existence is attested by its effects alone, for its nature remains unknown. I allude to the *constitutio morborum stationaria*, first noticed by Sydenham, but since his time nearly forgotten, or else confounded with the permanent influence of the seasons, or the accidental atmospherical changes spoken of above. All diseases, contagious or non-contagious, acute and chronic, (the latter, however, seldom, except when attended with some degree of general excitement), have been observed to preserve a certain *constitution or general character*, which continues for a number of years in succession, with occasional interruptions, until it is displaced by another constitution of a different character. Thus, during one period diseases are remarkable for being frequently accompanied by a sensation of extreme weariness, sudden sinking of the strength and vital powers, unpreceded by any evident marks of excitement, and attended by a disposition to pass into true typhus. During another period, the tongue is in general loaded with a thick white or yellowish coat; and many other symptoms of derangement in the digestive organs, such as a bitter taste, costiveness, or diarrhœa, are constantly observed.

"During a third period, diseases are characterised by a remarkable degree of vascular excitement, an evident tendency to local determinations, a frequent formation of morbid productions; in a word, by all the symptoms of inflammation.

"It is not known whether the transition from one of these periodic constitutions to another takes place suddenly or gradually; but the latter supposition appears more probable, except when the transition is accompanied by unusually great atmospheric changes. The erysipelatous affection, which, both in England and Germany, succeeded the gastric and accompanied the first appearance of the inflammatory period, seems to have been an example of the gradual transition. Accurate observations are still wanting to determine whether this periodic constitution is confined to certain parts of the world or extends over the whole, and whether its different species follow each other

in a regular order of succession. If their order of succession should at any time be determined, it will enable the physician to foretell the character and most appropriate treatment of future diseases. The above questions cannot be answered without very great labour spent in the investigation of the history of diseases in all ages and all countries, and are therefore foreign to the present work.

"The general indications of course vary with the nature of the prevailing constitution; and, consequently, during one period stimulating remedies, during another alvine evacuations, and during a third venesection and the antiphlogistic plan, will constitute the most effectual treatment.

"This very circumstance has caused much confusion in medical opinions, and has occasioned the reputation and the downfall of many an infallible system, each of which is in its turn consigned to oblivion, and perhaps again revived as a novelty at some future period. The English boast much of the astonishing improvements in science, and deride the ignorance of their predecessors, regardless of the old proverb,—'Everything has its day.' Whenever, therefore, the periodic constitution undergoes an alteration, they either obstinately uphold their usual plan of treatment, to the manifest injury of their patients, or else blindly embrace some system, to them new, but which really rests upon ancient and established principles. In general, they do not fail to make use of so much exaggeration in support of their opinions, and thus succeed in misleading so many, that none but very well informed physicians can distinguish the fallacy of their arguments.

"The medical history of Great Britain affords many striking proofs of the truth of these assertions, and is replete with examples of the singular obstinacy with which the English cling to opinions once formed, a circumstance which has materially contributed to obstruct their attaining to general views and impartial conclusions. Even to this day, a warm contest is carried on (less, however, in books than in the debates of learned societies) between the senior and the junior parts of the profession, the former still inclining to Brunonianism, while the latter attribute nearly all diseases to inflammation. Both, indeed, appeal to experience to prove the justice of their principles, and seem entirely to forget that while the propriety of their practice, as applied to particular cases, remains unimpeached, the very nature of the diseases themselves may have been changed. A summary review of the character assumed by diseases during the last twenty years, both in England and other countries, will perhaps afford a solution of this question. About the end of the last and during the three or four first years of the present century, the proportion of nervous fevers to other diseases was as one to eighteen in Plymouth (Woolcombe), as one to sixteen in London (Willan), as one to ten in Newcastle (Clarke), and in Liverpool, one to five (Curry). Nor was this scourge of mankind less severely felt upon the continent, where typhus, and diseases closely allied to it, committed extensive devastations, particularly during the epidemics of Erlangen, Jena, Kiel, Ratisbon, and Vienna. Cadiz and Seville were at the same period depopulated by the yellow fever, and Europe in general suffered much from repeated visitations of influenza. An inclination to a sudden sinking of the vital power, unpreceded by violent reaction, and unaccompanied by any marked symptoms of a gastric or inflammatory nature, constituted at that period the characteristic form of acute diseases, which were always preceded and attended with an unaccountable degree of debility. Stimulating and tonic medicines obtained, therefore, much celebrity, and every physician who practised during that period attests the injurious or

even fatal effects which were produced by the use of venesection, and other depletory remedies. What is still more remarkable, an epidemic typhoid pneumonia prevailed in many parts of Germany during the years 1800-1-2, in which the speedy production of an inflammatory state, by means of bark and ether, was the only method which afforded a chance of recovery. These facts must impress every impartial mind with the conviction, that the constitution of diseases has undergone much alteration since that period, and explain why physicians did not then employ copious venesection, but were obliged to content themselves ordinarily with cold effusions, acids, and mercury.

"The reign of typhus appears to have ceased with the influenza of 1804, when a new constitution began, at first more remarkable for the disappearance of nervous fevers and other contagious diseases, than for any peculiar character of its own. Catarrhal and rheumatic complaints, partly attributable to the weather, prevailed for some time, and fevers of an intermitting type became more frequent, forming an evident transition from the purely typhus constitution to that of the vascular excitement of the following years. Some remnant of the typhus constitution was indeed still perceptible in the pectoral complaints which prevailed in London during the winter of 1804-5, and were attended with remarkable debility, requiring the greatest prudence in the use of the lancet. Venesection was indeed often entirely contraindicated, and Bateman states it sometimes even proved fatal. The constitution, however, soon developed itself more decidedly, became more universally diffused, and obliged physicians to relinquish their former plan of treatment and adopt other measures. Derangement of the alimentary canal became its prominent feature in the summer and autumn of 1804, and diarrhœa, terminating in dysentery, was often met with.

"This constitution suffered indeed a check from the cold of 1805, but it increased again during the following years, and afterwards became still more prevalent, manifesting itself by headache, a bitter taste in the mouth, a loaded yellow tongue, irregularity of the bowels, nausea, and anorexia. The utility of purgatives now became so obvious, that Hamilton's doctrines soon obtained as much celebrity as had been before enjoyed by the stimulating system. The nervous fever at Nottingham in 1807, the dysentery at London in 1808, the scarlatina at Edinburgh in 1805, and the measles at the same place in 1808, all required the purgative plan of treatment, and calomel became the favourite cathartic. The advantage then derived from the use of purgative medicines is abundantly testified by the writers of that period. This gastric constitution appeared also on the continent, but its progress was less rapid there than in England, where the inhabitants live in a manner calculated to augment or even to produce a tendency to gastric diseases. There were likewise other circumstances which impeded the formation of this constitution on the continent. Thus in Germany, the purely nervous constitution had scarcely yielded to catarrhal and rheumatic affections, when it was again revived in that unhappy country by the political occurrences of 1805-6-7. Typhus seldom, however, assumed the character of exquisite, for the rheumatic and catarrhal affections with which it was mixed partook somewhat of a gastric nature, as was proved by the great benefit derived from the exhibition of emetics and calomel. This appears in accordance with the fact, that the gastric constitution was more fully developed wherever the ravages of war had not extended, although it still required less attention in the treatment than the rheumatic symptoms, then likewise prevalent. Thus the agues which were common at Tübingen about the end of 1806 com-

menced in general with pain in the belly, vomiting, and irregularity of the bowels; a yellow furred tongue, headache, and tumours of the parotids were of frequent occurrence, and in general gastric symptoms were by no means rare. These symptoms gradually gained ground, and the reputation of ipecacuanha and cathartics increased in the same proportion. At Ratisbon the *constitution* was remarkably gastric in the autumn of 1809, and a nervous fever prevailed at Weimar in 1809-10, which was accompanied by bitter taste in the mouth, diarrhœa, nausea, and vertigo. Active catharsis was injurious in this epidemic, but much benefit resulted from the exhibition of castor oil. The advantage derived about the same time in Berlin from the treatment of fevers by emetics and cooling purgatives, proved that they were there also complicated with gastric derangement.

"The gastric constitution had scarcely established itself, or become pretty generally diffused, when a new character, viz. the inflammatory, appeared upon the stage, and has ever since continued, sometimes combining itself with the gastric to form diseases of a mixed character, such as erysipelas, and sometimes, when favoured by the seasons or local circumstances, raising itself to the rank of the chief performer. With its appearance, venesection, which had previously fallen into disrepute, became once more a favourite remedy, and in the course of a few years was pushed so far, particularly in Great Britain, that Sangrado's maxim, 'C'est une erreur de penser que le sang soit necessaire a la conservation de la vie, on ne peut trop saigner un malade,' seems to have been the general rule of practice. The same inflammatory constitution became also general in Germany, but there it neither attained such a height, nor required such active treatment as in Great Britain, where many circumstances favoured its more perfect development; with us it generally yielded to the use of acids, cold applications, and mercury, but in England it called for copious blood-letting. Even in 1810, diseases had become more inflammatory at Tübingen than they had been previously; but the change was still more perceptible in 1813, when the antiphlogistic treatment required the aid of small venesections, and nervous fevers were accompanied both by inflammation and derangement of the digestive organs. Erysipelatous affections were also frequent, and in many cases were of a marked inflammatory character. Erysipelas and true inflammatory fever, requiring the use of the lancet, were common at Ratisbon in 1811. Parrot exhibited acids, especially the acetous, with great success in the epidemic nervous fever which raged at Dorpat in 1812, and a diarrhœa of a bilious inflammatory nature prevailed at Königsberg during the same year. This important change in the *constitution* became very evident in the nervous fever at Berlin in 1813, as well as in the formidable epidemic described by Hufeland, which ensued after the war, and raged in the north of Germany during that and the preceding year. Although but a few years before the strongest stimulants had been necessary to obviate the paralysis which supervened even in the beginning of the disease, yet an opposite practice was now required, and antiphlogistic remedies were alone found capable of preventing the vascular excitement from terminating in inflammation of either the head or chest. In short, the inflammatory *constitution* has been prevalent in Germany ever since the years 1810-11, sometimes in its pure and marked form, and sometimes complicated with gastric and rheumatic symptoms.

"This *constitution* became general at the very same period in Great Britain. Dr. Clutterbuck of London had indeed ascribed the origin of fever to inflammation of the brain, so early as 1807, and about the same time Dr.

Steiglitz of Hanover had recommended the antiphlogistic treatment of scarlet fever, in preference to the stimulating plan then in vogue. But as the inflammatory was then still subordinate to the rheumatic and gastric constitutions, their opinions did not gain many converts. But the inflammatory constitution had increased so much in the autumn of 1809, and the winter of 1810, that even Bateman was obliged to prescribe venesection in fevers—a practice quite at variance with his former views. Erysipelatous inflammation became common in London, Aberdeen, and Leeds, and numerous cases of puerperal fever occurred in the latter towns, which, according to Gordon and Hey, never terminated favourably, except when bleeding and purgatives were employed with freedom. But it was not until 1813, when the inflammatory constitution had fully developed itself, and the bad consequences arising from violent determination of blood to the head in nervous fever could not be averted except by decisive measures, that venesection came into general use in Great Britain, in consequence of a publication by Dr. Mills, who had prescribed it with much success since 1810. In the same year that truly estimable physician, Dr. Thompson, published his admirable work upon inflammation. Blackall recommended blood-letting in several species of dropsy, and Armstrong employed the same remedy, combined with large doses of calomel, in the inflammatory puerperal fever which was prevalent in Sunderland. Venesection became from this time as great a favourite as ever in England, not, however, to the exclusion of purgatives, which were indicated by the derangement of the stomach and bowels that accompanied the inflammatory constitution. Both these remedies were found extremely beneficial in the nervous fever which was epidemic in Ireland in 1813–14; its inflammatory character being clearly evinced by a hard and full pulse during its first stage, and a violent determination of blood to the head, by which the headache and raving are increased, while its gastric type was not less strongly marked by tenderness of the epigastrium, costiveness, or else frequent and unnatural alvine discharges, together with a loaded tongue and bilious vomiting. The latter symptoms were, in Dr. Grattan's opinion, of such importance, that he gave a decided preference to the purgative plan. The fever, which had previously been confined to Ireland, became generally diffused over the rest of Great Britain after the famine of 1816, and continued without intermission for four years. Its inflammatory character being peculiarly favoured, both in England and Scotland, by the habits of the inhabitants and the situation of these countries, venesection attained an unexampled degree of celebrity, notwithstanding the representations of the Irish physicians, who used that remedy with more moderation. It was soon believed that there is, literally speaking, no disease whatever in which the lancet ought not to be used, and, as the human mind is ever prone to extremes, it was soon generally considered, both in England and Scotland, to be a well founded pathological inference, "there is but one species of fever, viz., the inflammatory, and consequently venesection is the only true anti-febrile remedy. Such is the case in England at present, and it must have been so always, and in every part of the world." I flatter myself, however, that the preceding observations and statement of facts, drawn from authentic sources, sufficiently negative these assertions, and establish the real existence of a change in the constitution of diseases, notwithstanding what Dr. Duncan once said to me, "that such changes existed only in the imagination of physicians."

It is now twelve years since Dr. Autenrieth, in his *Account of the State*

of *Medicine in Great Britain*, made the foregoing interesting observations ; and to me it appears that the history of the diseases which have since prevailed, affords convincing proofs that the then *inflammatory constitution* has again subsided, and is now replaced by a typhous type : indeed, it cannot be denied that a very great difference exists, not only between the present and the former scarlatina, but also between the fever of the present day and that which prevailed shortly before Dr. -Autenrieth published. But this is too important a question for us to decide without more reflection and thought than I have been able to bestow on it, and without more facts than I have been able to collect. The opinion I have brought forward I do not wish to be received as established ; I look upon it as probably well founded, but as yet not proved, except so far as to merit further consideration and excite further discussion.

Indeed, I have been for the present been obliged, by the pressure of other engagements, to postpone a more accurate examination of this subject, and a more severe scrutiny of the facts which just now crowd into my memory ; but I conclude with remarking, that the wide-spreading epidemic of influenza, which in 1833 visited the whole of Europe, including the British Isles, was not only truly remarkable, both for the violence of the feverish symptoms and of the local congestions of the chest and heart which accompanied its attack, but likewise for the unexpected relation which it was found to bear to all measures of active depletion. I appeal to the profession for their testimony on this matter—I ask whether all our preconceived opinions as to the *a priori* indications for venesection, leeching, and purging, were not found to be contradicted by the effects of these remedies in that epidemic. The sudden manner in which the disease came on, the heat of skin, acceleration of the pulse, and the intolerable violence of the headache—together with the oppression of the chest, cough, and wheezing—all encouraged us to the employment of the most active modes of depletion, and yet the result was but little answerable to our expectations, for these means were found to induce an awful prostration of strength, with little or no alleviation of the symptoms. In some who were thus treated, recovery was protracted and doubtful, and the strength was not restored for several months. Indeed, nothing was more curious than the length of time which was necessary for some persons, in order to recruit their strength after an attack of influenza, although that attack had not continued more than a few days, and had been judiciously treated, without blood-letting or unnecessarily debilitating remedies. I have known some who lapsed into a cachetic state of long continued debility from which they never recovered ; for, while thus reduced, they fell victims to the first acute complaint which seized them. The influenza above referred to fully confirmed the opinion I had long entertained, that in acute diseases debility and exhaustion of the vital power are by no means in every case either caused by, or proportioned to, a state of previous excitement. This opinion received further support from the symptoms and phenomena exhibited by the Asiatic cholera, in which the stage of debility and collapse commenced, and too often closed the scene ; and has been still more powerfully corroborated by the epidemic of influenza of 1837 and 1847, as also by the Irish epidemic fever of 1846-'47. Why do I dwell upon these occurrences, and why have I so frequently referred to the opinion above expressed ? Simply because the prevalence of the contrary opinion laid the foundation for the injudicious and exclusive application of the lancet, and of the anti-

phlogistic method generally in Great Britain, and was, consequently, the cause of working excessive mischief.

I have already mentioned that the disease called scarlet fever assumed a very benign type in Dublin soon after the year 1804, and continued to be seldom attended with danger until the year 1831, when we began to perceive a notable alteration in its character, and remarked that the usual undisguised and inflammatory nature of the attack was replaced by a concealed and insidious form of fever, attended with great debility. We now began occasionally to hear of cases which proved unexpectedly fatal, and of families in which several children were carried off; still it was not till the year 1834 that the disease spread far and wide, assuming the form of a destructive epidemic. The nature of the disease did not appear in the least connected with the situation or aspect of the patient's dwelling, for we observed it equally malignant in Rathmines as in Dublin; on the most elevated habitations on mountains, as in the valley of the Liffey. It raged with similar violence at Kingstown, and the neighbourhood of Killiney and Bray. The state of the weather seemed to exercise no influence either upon its diffusion or its symptoms, which continued to exhibit equal virulence, no matter whether it was wet or dry, warm or cold, calm or stormy. The contagion seemed to act as a more deadly poison on the individuals of some families than upon those of others, and consequently, when one member of a family died, there was always much reason to fear for the others when attacked. At first I thought that its greater severity in such cases could be traced to strumous habit, but subsequent experience did not confirm this suspicion, for the most scrofulous family I ever saw went through the disease without a death, whereas in some others the mortality was great, although not a single indication of a strumous diathesis could be detected. Many parents lost three of their children, some four, and in one instance which came to my knowledge, five fine children were carried off. As usual in such epidemics, the degree of intensity with which different persons were attacked varied exceedingly, some exhibiting the mildest form of scarlatina simplex, which required no treatment, and scarcely confinement to the room, while the majority were severely affected. When the disease was violent, it assumed one or other of the following forms:—

First.—It at once produced not merely fever with sore throat and headache, but such violent congestion of the brain, and determination to the head, as occasioned convulsions and apoplectic coma on the first or second day. This happened to a young woman of robust habit in Werburgh-street, to whom I was called by Dr. Brereton. She was attacked with convulsions on the second day, and died comatose on the third. In her the scarlet eruption was extremely vivid and general, a fact I notice as a proof that the congestion of internal organs was not caused by any retrocession of the irruption. In truth, as will appear hereafter, the worst cases had the most general and most intense cutaneous efflorescence. When this tendency to the head took place in so violent a manner at the very outset, the patient was seldom saved; sometimes, however, very active measures of depletion, general and local, relieved the brain, and the case then went on favourably. This happened in a young gentleman residing in Upper Baggot-street, to whom I was called by the late Mr. Nugent, of Merrion-row. When the scarlet fever attacked a person subject to epileptic fits, the tendency to the head was increased by the epileptic habits, and fits of convulsions at once supervened. Thus, in the case of a gentleman, aged twenty-two, who had been for several months treated by Mr. Colles and myself for epilepsy, the fits commenced on the second day of

scarlatina, and continued with frightful violence until the fifth day, when they proved fatal. In a young lady residing near Blackrock, to whom I was called by Dr. Wilson, precisely the same thing occurred. She had been subject to epilepsy for many years, and when the scarlet fever commenced, she was at once seized with frequently recurring fits, which, in spite of the most active measures, ended in fatal coma on the fifth day.

In the *second form* of the disease which I noticed, the symptoms were exceedingly violent and intense from the beginning, and the disease set in with the usual symptoms of severe exanthematous pyrexia, remarkable in the very commencement for the violence of the accompanying headache and spinal pains, and for the great irritability of the stomach and bowels. Indeed one of the very first symptoms in such persons was nausea, vomiting, and bowel complaint. Large quantities of recently secreted bile were thrown up, and the patient passed frequent stools, curdled green or saffron yellow, at first semi-fluid and afterwards fluid, and evidently composed of bile suddenly effused into the intestinal canal, with a copious and hurried secretion of mucus from the internal membrane of the bowels, and mixed with some true fecal matter. It was surprising what quantities were thus thrown up and passed from the bowels, by some individuals during the first day or two of the disorder; neither the constant repetition of the nausea and vomiting, nor the abundance of the discharge from the stomach and bowels, in the slightest degree mitigated either the violence of the fever or of the headache, or seemed to prevent the full formation of the eruption. It was curious to observe that this obstinate vomiting and purging were unaccompanied by the slightest epigastric or abdominal tenderness; during its continuance the belly became fallen and soft. In fact its cause was situated not in the belly, but in the brain, a fact I did not perceive until I had an opportunity of watching the progress of five or six such cases. It depended on cerebral irritation and congestion, and was in nature very similar to the irritability of stomach and bowels which so often accompanies, and too frequently masks the progress of acute hydrocephalus. As soon as I had become aware of the pathological relations of this vomiting and purging, I did not confine my endeavours to check these symptoms, to measures intended to act directly on the stomach and bowels, such as effervescing draughts, chalk mixture, stupes, leeches to the epigastrium, &c., but I changed my plan of treatment, and turned my attention to the state of the cerebral circulation. Having in a former lecture referred to this topic, and having explained to you the manner in which derangement of the stomach and bowels of a properly gastric origin is to be distinguished from disorder of the digestive apparatus, originating in a sympathetic derangement of function, itself caused by a morbid condition of the brain, and having already pointed out the importance in practice of not confounding these two states, one or other of which is so common in the commencement of violent fevers, phlegmasia, and exanthemata, I shall not at present dwell any longer on this subject.

The second form of scarlatina was likewise remarkable for the violent excitement manifested from the very beginning in the circulating system, and in the production of animal heat. The pulse at once rose to above 100, it was seldom less than 120, and in many cases, particularly in young people, it ranged from 140 to 150. I have never in any other disease witnessed so many cases of excessively rapid pulse. In general the pulse in this form was regular, but in two cases it became irregular. One was that of a gentleman living in Upper Mount-street, whom I attended with Sir Henry Marsh; his

pulse became intermitting and irregular on the third day, and continued to be thus affected more or less for about a week. This gentleman was attacked with subsultus, delirium, jactitation, and various nervous symptoms, at a very early period, and complained constantly of his throat and head. The former was violently inflamed, and his skin was covered with a bright red eruption. On the ninth day he was seized with convulsive fits of great violence, and which returned very frequently during the night; his case appeared utterly hopeless, and yet he perfectly recovered. In a young lady who was attended by Dr. Nowlan, great irregularity and intermission of the pulse commenced about the eighth day, and continued during the state of danger; she also recovered. Of course irregularity of the pulse was in many not so much a symptom of disease as of approaching death, but then the state of the patient could not be mistaken, judging from all the other circumstances of the case. The acceleration of the pulse abated in all when an evident improvement in the general condition took place, but in few did the pulse become quite natural for many days after the favourable change, and in none did it fall to its usual standard in the course of twelve or twenty-four hours, as it not unfrequently does after the crisis of continued fevers; in fact, the scarlatina never ended with a well-defined crisis.

As to the temperature of the body, I have already observed that in the cases I am now describing it was from the first considerable, and continued elevated until a very short period before death. Both the pulse and heat of skin, however, were very easily reduced in energy by the use of the lancet, or by the repeated application of leeches, and it was not uncommon to observe that even the judicious use of these means induced a general coldness of surface, very great sinking of the strength, and a faltering state of the pulse. This was remarkably the case in a young lady whom I attended along with Mr. Wilkinson in Blackrock, and also in one of the family for the history of whose cases I am indebted to Dr. Nolan. In both, these effects were very obstinate and alarming, for reaction was not restored until after the lapse of more than twelve hours, but both finally recovered. The pulse was sharp but not strong, and resembled the pulse of great irritation rather than that of true inflammation.

The most distressing symptom at the commencement of this form of scarlatina was the sore throat; the fauces were violently inflamed, and deglutition consequently much impaired, while a general soreness was felt in the back of the head and neck; urgent headache was complained of by all, and from the second day the eyes became suffused; great restlessness, anxiety, jactitation, moaning and interrupted raving soon made their appearance, and in many sleep was banished or utterly broken by startings and delirium before three or four days had elapsed. The eruption had now arrived at its height, which it did with great rapidity, dating from the first moment of its appearance, so that the skin, everywhere covered with a scarlet eruption, resembled in appearance the hue of a boiled lobster.

In these violent cases the efflorescence was perfectly continuous, and never broken into spots or patches; the skin appeared as if evenly dyed with one uniform colour; the surface of the tongue was likewise much affected with the same exanthematous redness, and soon became foul, and afterwards dry and parched. The sudden drying of the tongue on the fifth or sixth day indicated in this form a rapid aggravation of the disease, and death in several cases was observed to follow this change in less than twenty-four hours, when it was, as in a young gentleman Mr. Rumley and I attended in French-street,

accompanied by a sudden acceleration of the pulse and increase of the jactitation and delirium. In this form the brain and nervous system seemed to be the parts which suffered most, and many became insensible for several hours before death; others had convulsions. When the patient survived the seventh day there was a fair chance of recovery, but many, too many, died on the fourth, fifth, or sixth days.

After I had witnessed a few examples of this form of scarlatina, I consulted with several of my friends and colleagues, and we determined to use the most active measures of depletion in the very first instance that occurred to us. A case was not long wanting. Sir Henry Marsh and I were engaged in prescribing for some children labouring under the epidemic, in a house in Pembroke-street, where our attention was directed to a fine boy, six years old, and hitherto perfectly healthy, who was, while we were paying our visit, attacked with the first symptoms of the complaint; we immediately resolved that as soon as the stage of rigor and collapse which preceded the febrile action had passed, to visit him again and act energetically, if circumstances seemed to permit it. Accordingly we came again in the course of a few hours, and found reaction already established, attended with vomiting, purging, and headache. The sore throat, too, was much complained of, and there was great tenderness of the external fauces. We ordered relays of leeches, eight at a time to the neck, for the purpose of relieving both the throat and brain, and we administered James's powder and calomel internally. On the next day the skin was burning, in spite of a copious loss of blood from the leech-bites, the eruption vivid and already established, the pulse 140, and there had been little or no sleep. Relays of leeches were again ordered, and persevered in until considerable and lasting faintness was produced, and yet no impression seemed to be the result, for the raving became more incessant on the second night, and on the third day suffusion of the eye commenced, and the tongue became parched. Shaving of the head, the most industrious application of cold to the scalp, and various other remedies were in vain applied; the pulse became weaker, the breathing quicker, the strength failed rapidly, raving and delirium gave place to insensibility and subsultus, and the patient died on the fifth day. In this case depletion was applied at once and decidedly, for we blanched and weakened the boy by loss of blood as far as it was possible to venture, and yet the disease was not in the least degree checked, nor the symptoms even mitigated.

A fine boy, thirteen years of age, was attacked in the county of Wicklow, where he was placed under the care of a very judicious practitioner, who did not use either venesection or leeches, but relied chiefly on the exhibition of diaphoretics, particularly antimonial. The boy died on the seventh day, having suffered much from delirium, subsultus, want of sleep, &c. His brother, who was one year older, and a very strong boy, was seized with the disease in Dublin, and placed immediately under my care. I had the advantage of Mr. Rumley's assistance, and we determined to prevent the supervention of the cerebral symptoms, if it were possible to do it, by means of antiphlogistic treatment: we failed, and our patient died on the sixth day. In short, this form of the disease, where the pulse, without becoming strong, *became at once extremely rapid*, bore venesection badly, and required great caution even in the application of leeches; the nervous symptoms appeared only accelerated by the system of depletion, although the heat of the skin suggested its employment.

The derangement of the brain and nerves in this form depended on some-

thing more than the violence of the circulation, and originated in something altogether different from mere cerebral inflammation or congestion. What that something was I cannot even conjecture; but it was probably the result of an *intense poisoning of the system by the animal miasma of the scarlet fever*. Every tissue of the body seemed, if I may use the expression, equally sick, equally overwhelmed, and it is probable that the capillary circulation in every organ was simultaneously deranged. It was not gangrene of the throat which proved fatal, for in this form it never occurred; it was not inflammation of any internal viscus, for such was not found on post-mortem examination of the fatal cases; but it was a general disease of every part. In many, another state of things, which required to be carefully distinguished from that just described, existed, and the disease was evidently attended with an inflammatory state of the constitution, requiring energetic measures. In such cases the symptoms were severe in the commencement, the throat very sore, the efflorescence, however, not quite so sudden or so perfect, and the pulse not so quick, never excessively rapid, and always strong and distinct. Such bore bleeding and leeching well, and experienced from their use almost immediate alleviation of the sore throat, headache, and restlessness, and were not much weakened by the depletion. It must be confessed that it was often exceedingly difficult to determine, *a priori*, whether the depletory system ought or ought not to be tried. Where doubt existed, my custom was to try moderate leeching, and from its effects I judged of the propriety of persevering.

The disease very frequently occurred in a *third form*, more singular still than the two first, and much more insidious in its commencement. This form was evidently very common in the epidemic scarlet fever described by Withering, as cited by Dr. Tweedie. In this form the disease was ushered in by the usual symptoms of pyrexia, together with sore throat, slight headache, and in due time a very moderate and normal eruption. The symptoms continued moderate; the patients, after the first few days, slept tolerably well during the night, had no raving, and were quiet during the day. About the fourth or fifth day all the febrile symptoms had so far subsided that a most accurate examination could detect nothing urgent, nothing in the slightest degree either alarming or calculated to excite the least anxiety in the patient's condition. His skin became nearly of the natural standard, his thirst diminished, and the pulse was now scarcely accelerated; a calm, nearly complete in fact, seemed to have followed the first onset of the disease; and, on entering the room, the physician might easily be deceived, as I myself was more than once, into the pleasing hope that all danger was past, and that perfect recovery might confidently be anticipated.

This hope was, in truth, founded on such circumstances as we can usually rely on; for who would prognosticate danger, where his little patient, sitting up in bed, and perhaps eating a dry crust with some appetite, had a placid countenance, and had enjoyed a night of tranquil sleep? Regular alvine evacuations, diminution of thirst, sore throat, headache, and fever, together with the normal state of the cutaneous eruption, all conspired to confirm a favourable prognosis; and so matters proceeded, the family dismissing all apprehensions as to the result, and the physician most probably discontinuing his attendance about the seventh day, in the belief that all danger was over, and that his interference was no longer necessary. Matters proceeded thus until the eighth or ninth day, when a certain degree of restlessness was observed to occur, and in the morning a slight return of fever might be

noticed. Then it was that a peculiar train of symptoms set in. The nostrils assumed a sore and irritated appearance about the edge of the alæ, and a serous moisture began to flow from their internal cavities. Sore throat was again complained of, the skin became hot, great debility and prostration of strength came on suddenly, a painful tumefaction commenced in the region of the parotids and submaxillary glands. This tumefaction increased rapidly, becoming every day harder, more elevated, diffused, and exceedingly tender, but without much redness. In the course of a few days it surrounded the neck like a collar, and being attended with swelling of the face, the poor little patient's countenance was sadly disfigured. In the mean time the discharge from the nose had increased considerably, and become more viscid and fetid; the internal membrane lining the nasal passage was affected throughout, its entire surface everywhere inflamed and tumefied, so that a snuffling sound was produced when the patient breathed through his nose: at length the discharge increased to such a degree, that the nostrils became completely imperious to the air in breathing. The state of the throat generally began to alter for the worse at the very commencement of this change; and a similar inflammation, attended with an ill-conditioned secretion of lymph and fluid, occupied the entire surface of the mouth and tongue, and at last spread deeply into the pharynx.

While this was going on, the fever freshly lit up, at once exhibited the most decided symptoms of the worst form of typhus and subsultus, constant muttering, raving, anxiety, want of sleep, restlessness, moaning mingled with an occasional screech, reminding one of that which is so ominous in hydrocephalus. Great difficulty was now experienced in swallowing, and the drink was frequently spurted out of the mouth after a vain attempt at deglutition. Matters now proceeded rapidly from bad to worse, and at last, after much suffering, death closed the scene, being preceded many hours by a state of extreme restlessness, during which it was impossible to determine whether the patient was still sensible. The swelling of the neck went on increasing to the last, but seldom exhibited any tendency to point; it continued, on the contrary, everywhere hard, or, at most, became indistinctly softened, or, to use a technical phrase, "boggy." When cut into, no matter was found; blood, serum, and a diffused cellular slough, not separated from the living tissues, were observed on making the incision.

Some notes on this epidemic I received from Mr. O'Ferrall are extremely valuable, more especially where he describes a most important sequela of scarlatina, not hitherto mentioned by any writer; I shall therefore give you a brief statement of his observations.

"Of seventeen cases," says he, "of which I possess notes, four occurred in adults, three in children under four years of age, and the remainder at different ages between the latter and fourteen or fifteen years. I seldom saw the cases in the commencement. The mode of attack was occasionally similar to that of common sore throat followed by rigors; sometimes violent pyrexia and shiverings, with intolerable headache, and even delirium, preceded by other signs. In some few cases, the efflorescence first attracted notice, the fever in these instances being throughout so mild as scarcely to demand attention.

"The progress of the disease was various, but usually bore a relation to the character of the incipient fever. In general, the fever increased in intensity as the disease advanced, or as new parts became engaged; but this was not always the case. In two instances, which I saw in a state of great vital

depression on the third or fourth day, I was assured that the early fever was very high, although it had passed rapidly into the typhoid state.

"The danger sometimes appeared to arise from the condition of the entire system, sometimes from that of important parts. Of two cases which I saw when dying, one was sinking like a person in typhus fever; the other, a boy thirteen years old, was moribund in the coma, which succeeded to violent phrenitic delirium. The latter case was remarkable in this, that the phrenitic state occurred while the eruption was in its prime, the whole body retaining its deep scarlet colour until a short time before his death. The disease in this instance set in with delirium, which had been subdued, I have reason to believe, by the most active means. Death occurred in one instance from croup, the disease of the throat having passed into the trachea and bronchial tubes. In another, sloughing of the fauces, with low fever, carried off the patient on the sixth day.

"In several, who ultimately recovered, life was seriously endangered by local inflammatory attacks. In one instance, a girl about seven years old, enteritic symptoms sprang up suddenly while the patient was in a very weak state, and were with difficulty subdued. In another, a boy ten years old, acute pain in the region of the heart occurred when the eruption was on the decline; it was accompanied by short cough, palpitations, dyspnoea, rapid though not irregular pulse, and sudden accession of fever. There was no perceptible *frottement*, but the action of the heart was violent, and there was acute pain on pressure. It yielded to leeching, followed by calomel with James's powder, till the gums were slightly touched.

"Another patient, a girl twelve years old, narrowly escaped the effects of sloughing of the throat. Croup occurred in two instances, in which, notwithstanding the opinions of M. Trousseau, I could not doubt its origin in scarlatina. It happened, no doubt, in cases which had exhibited the diphtheritic patches, without much surrounding inflammation on the tonsils, but the eruption was sufficiently marked to remove all obscurity. One child, who recovered, ejected the false membrane (which I still preserve) in a tubular form, and presenting a cast of the trachea a little beyond its bifurcation. In the child before mentioned, who died, patches of false membrane were also ejected; but she sank exhausted, and the disease was afterwards discovered to have extended far into the bronchial ramifications.

"Although the treatment was generally antiphlogistic, this plan was not always applicable, even in the commencement of the disease. In all instances which I had an opportunity of observing, it was necessary to watch the effects of local bleeding. It was easy to pass the boundary of relief, and then most difficult to repair the loss, and meet the symptoms of exhaustion when they had actually set in. Wine and diffusible stimuli were often required from this cause alone, even when the cases had nothing of the malignant or typhoid character in their nature.

"Tepid sponging appeared in many instances preferable to cold, and I think the soothing effects were of longer duration. Reaction and the distressing sense of burning heat did not appear to recur so soon as when cold fluids were employed. Purgatives, except of the mildest kind, were not well borne, but cooling diuretics were clearly indicated, and, when persevered in, had, in many cases, the apparent effect of anticipating the sequelæ of the complaint.

"The ulcerations and sloughings of the throat were treated by nitrate of silver, alum, and the chlorides, according to their states. But none of these

applications were to be depended on when the colour of the fauces was intensely red, unless a few leeches had been previously applied. In one gentleman, twenty-eight years of age, free leeching externally (to the number of forty) failed in removing the sense of suffocation or enabling him to swallow. A few leeches applied to the inside of the nostrils were followed by copious bleeding and immediate relief. The latter expedient was indicated by the tumid state of the velum and pituitary membrane, the stertorous breathing, and complete occlusion of the nares.

"Its mode of spreading in families was uncertain. It sometimes attacked children within a few days of each other; at other times a fortnight has elapsed before I was again requested to see a new patient. Some children escaped the disease altogether.

"Among the sequelæ which I had occasion to see, diarrhœa occurred in two or three instances, chronic bronchitis in one, and anasarca in four. The urine was slightly albuminous in two of the latter cases before the face and limbs began to swell; in the other two it exhibited this character when the disease was formed, but I did not see them previously. The treatment of the anasarca was antiphlogistic and diuretic, and succeeded in restoring three to perfect health. The fourth still remains an invalid, but not from this cause; the apex of the right lung affords evidence of tubercular disease.

"I have now to mention a peculiar affection of the neck, which I have not before seen in connexion with scarlatina, but of which four cases have occurred during my observation of the epidemic in question.

"Case 1.—About the beginning of August, 1834, I was requested by my friend, Dr. Davy, to see a young girl, ten years old, in Upper Baggot-street. Her convalescence was tedious, some degree of fever still existing at the end of six weeks from the commencement of the attack. But her principal complaint was severe pain of the right side of the neck, close to the head, and extending as high as the vertex, on the least motion of the part. She could not raise her head from the pillow without putting a hand at each side for its support, and when taking out of bed, instinctively sought a resting-place for the chin. The face was awry, its vertical diameter passing from above downwards, and from right to left. Posteriorly, the upper cervical vertebræ were curved, the convexity of the curve being situated a little to the left of the middle line: there was considerable swelling of the soft parts covering the bones. Pressure here was intolerable, and the least attempt to rotate the head occasioned severe pain. Deglutition was now tolerably easy, but there had been considerable difficulty of swallowing during the early period of the complaint. There was here obviously a carious state of the articulation of the atlas and dentata, and we did not expect to remove the curvature. Perfect rest was, however, enjoined, and the usual remedies employed with a view to arrest the further progress of the disease. She gradually recovered her health, and is now lively and well grown, but the curvature is permanent.

"Case 2.—Early in August, 1834, Mary Inglesby, of Russell-place, aged 7, was sent to me by Mr. Long of Summer-hill. She was confined to bed in scarlatina for a fortnight. At the end of this time she was taken out of bed, and then the head was observed to be turned to one side. It was now five weeks altogether from the beginning of the disease, and the parts were still in the same state. The face was awry. She complained of pain in the concavity of the curve and that side of the head, and could not bear the slightest motion or shock. Leeches were prescribed, and calomel given afterwards in doses of a grain three times a day, till the gums were touched. As soon as

this effect was produced, the pain subsided, and the head gradually acquired its natural position. Her recovery was complete.

"Case 3.—A younger brother of Mary Inglesby was subsequently under the care of Mr. Long for scarlatina. The same state of the head and neck was detected on the thirteenth day, and treated by Mr. Long on the same plan as that adopted in the former case. The pain disappeared as soon as the mouth was made sore, and the position of the head became natural. He is now in good health.

"Case 4.—I met Mr. Edgar of Arran-quay, in February, 1835, in the case of a young gentleman about six years old, whose convalescence from scarlatina was tedious, and in whom the difficulty of swallowing persisted after the redness of the fauces was removed. On taking him out of bed it was remarked that he was quite unable to keep the head erect. The symptoms were similar to those of the two last cases, but in a milder degree. A few leeches were applied, and evaporating lotions instantly used to the part, on account of considerable local heat. The leeching was repeated in a day or two, but as the symptoms yielded rapidly, and as he had some tendency to diarrhoea, calomel was not employed. In about a fortnight the natural position of the head and neck was restored.

"I can offer no better explanation of the occurrence of this affection during the progress of scarlatina, than by supposing that the inflammation of the fauces and back of the pharynx was propagated to the adjoining parts. In all these cases there had been marked and prolonged difficulty of deglutition, as a symptom of the disease ; and it is to this circumstance I am desirous of calling attention, as affording an index for a careful review of the condition of the spine during the period of convalescence. Should a child be observed to lie more on one side than the other, and evince an unwillingness to be disturbed, it would be an additional reason for suspecting a tendency to this complaint."

LECTURE XXIII.

SCARLATINA.—ITS DIFFUSION AND TYPE IN THE COUNTRY DISTRICTS OF IRELAND.

SINCE the preceding Lecture was delivered, scarlatina has raged every winter and spring with undiminished virulence, resisting, as before, nearly every kind of treatment, until the last two years, 1847 and 1848, when it was much less severe both in extent and character, and consequently much less fatal. A letter which I received in 1842 from Dr. Cumming, of Armagh, stating that scarlatina had rarely been witnessed in that city since he settled there, eleven years previously, and that he had never seen the malignant form of the disease, induced me to forward a circular to the principal medical men in the provinces, to ascertain if the disease prevailed in their respective districts, and if it had assumed the fatal form we had observed in so many instances in Dublin.

I shall now briefly state the principal facts contained in the answers to my queries. Dr. Geoghegan, of Kildare Infirmary, says that, during his residence there for ten years, scarlatina never prevailed as an epidemic, and the sporadic cases he met with were exceedingly mild, until just about the period of the receipt of my letter, when many cases of it occurred at Newbridge, four miles from his residence, on the Dublin road, and, to judge from the number and rapidity of the deaths, of the malignant kind. It was nearly confined to the children of the labouring class, but, not having the dispensary there, he did not see them. One case, however, which he did attend, that of a boy aged five years, then three weeks ill, he describes as follows:—On the right temple was a large ecchymosis, about two inches in diameter; arterial blood trickling from the nose, mouth, and ears; he was greatly emaciated, and quite sensible; had diarrhoea and the *hemorrhage* only from the preceding day; the cervical glands were enlarged, but had not suppurated, nor was there anasarca or dropsy; he died the following morning.

Dr. Astle, of Edenderry, does not remember its occurrence as an epidemic, and the sporadic cases he has seen have been mild. Dr. Woodward, of Kells, has not seen it epidemically, but isolated cases were remarkably fatal, some dying within the first twenty-four hours. Dr. Clifford, of Trim, mentions that it has latterly been prevalent in his district and very fatal. Dr. Clarke, of Rathdrum, states that it has been on the increase for the last three years, but has been very mild. Dr. Lloyd, of Malahide, says, "In reply to your circular relative to the prevalence of scarlatina in my district, I beg to say, the year ending May, 1839, no case occurred; May, 1840, one case in an adult; May, 1841, no case; May, 1842, thirty-two cases are registered, three of which were fatal, one twenty-four hours after the appearance of the eruption; the others were a brother and sister, aged eight and six, scrofulous, and after a period of from twelve to sixteen days they died of diseased brain and abscesses in the throat. Since May, up to this date (August, 20, 1842), six cases have been under my care. The only cases of moment were those

mentioned above as fatal, and some of the same family in which the urgent symptoms were extensive ulceration of the fauces—they recovered rapidly. During the past year there were numerous instances of the disease, but so slight that the individuals were under no restraint; so that I was not applied to, save occasionally to treat some of the sequelæ. I may here allude to a curious fact. My district joins on one side that of Baldoyle; on the other, Swords; in both, epidemic diseases have frequently appeared for the last twenty-five years, with virulence, and after a long period commenced in Malahide district, in a mild and subdued form: many of the poor inhabitants are aware of the circumstance.”

Dr. Glover, of Philipstown, never saw or heard of a case of scarlatina during the four years he has resided there. Dr. Brunker, of Dundalk, mentions that the disease has only presented itself in one instance within the last five years, and was very mild. Dr. Hudson, of Navan, has not met with the disease often; and during a term of eight years has had only one fatal case; whilst Dr. Byron, of the same town, states that the disease “was very prevalent, and in several localities unusually malignant during the last two years, up to a period of about two months ago, when it was observed to be on the decline. At present there are very few cases within twelve or fifteen miles of Navan, and these are less virulent, generally speaking, than formerly.” From Wexford, Dr. Boxwell writes, that there “they have had but a few scattered cases in the town for the last six years, and not one fatal.” In Arklow, Dr. Wright mentions that scarlatina has been very prevalent in that town and neighbourhood for several years past, particularly 1840-41; but it did not frequently prove fatal.” In Athy, as appears from the letter of Dr. Clayton, it has prevailed, and some of the cases have proved fatal. Dr. Macartney, of Enniscorthy, states that it was prevalent and fatal during 1837 and 1838, and that it was, at the time of writing, breaking out again.

The communication of Dr. Ridley, of Tullamore, I will read at length.

“Scarlatina,” he writes, “appeared here in the latter part of November as an epidemic, and continued to be very prevalent until June following. During this period it prevailed most in the month of March. I saw a great number of cases in this town and the neighbourhood, which were mostly all of the benign or simple form. Some cases occurred in full plethoric subjects, of an inflammatory nature; but I did not meet with a case of the malignant or typhoid disease, such as I have seen in Dublin. This epidemic raged chiefly amongst children and young people—the oldest subject I am aware of having had it was a person of forty years. It commenced with rigors, lassitude, loss of appetite (in some cases with soreness of the throat as a first symptom), and the usual symptoms of approaching fever, which continued to increase until the third or fourth day, during which time, in some instances, the fever ran high, with raving and other symptoms of cerebral disturbance. The eruption generally appeared on the second day in the form of small distinct spots like flea-bites, which did not run together, and declined suddenly on the fourth or fifth day without desquamation. In some instances the character of the eruption was an efflorescence, which remained until the sixth or seventh day, and was followed by desquamation. The fever was equally high in both these forms of eruption, but of greater duration in the latter. The throat was very slightly affected in the majority of cases, being nothing more than a slight erythematous blush on the velum and tonsils; however, in some robust, plethoric persons, there was much inflammation, demanding active treatment. The symptoms had usually so much subsided

as to enable the patient to leave the bed on the sixth or seventh day. *The fatal cases which I witnessed here were caused by congestion of the brain, occurring on the third day. While the eruption was well out and every thing appeared favourable, slight drowsiness set in, which was quickly followed by coma and stertor*; and in two cases death ensued in thirty hours from the commencement of the symptoms: they were all in young persons of full habit, who had no previous delirium or inflammatory affection of the brain. The sequelæ were anasarca (which was very general, and occurred after the mildest form of the disease), pneumonia, bronchitis, acute rheumatism, remittent fever, and enlargement of the submaxillary and parotid glands. In one instance pneumonia proved fatal in eighteen hours. It was the case of a boy nine years old, who had been three weeks recovered from scarlatina. The treatment was that usually practised. Emetics and purgatives, diaphoretics, attending to ventilation, &c., were sufficient in the generality of cases. In the inflammatory form, venesection, antimonials, and calomel were prescribed; when the throat was affected, the free application of nitrate of silver was found to be the best remedy. Leeches, acid gargles, application of powdered alum, blisters, &c., were also beneficial. When anasarca followed, it generally yielded to smart hydragogue purgatives; but in some cases I gave calomel and squill with advantage: as a prophylactic I was induced to try belladonna, but without success.

"There was at this time a very prevalent inflammatory affection of the throat, which appeared and disappeared with the scarlatina. This disease commenced with slight fever, stiffness of the neck and dysphagia, which afterwards increased to a great degree. The pharynx, tonsils, and velum assumed a deep scarlet hue, and were in some cases covered with patches of lymph, which could be raised off with a probe, like the membrane of diphtherite. The tonsils became greatly enlarged; also the parotid and submaxillary glands; the jaw became fixed, so that the teeth could not be separated; there were inability of swallowing, hurried breathing, and high fever. These symptoms increased to the fourth or fifth day, when the fever subsided with diaphoresis, the jaw became relaxed, copious salivation came on, and the ability of swallowing was in some degree restored; and, finally, in the course of eight or nine days from the commencement of the attack this inflammation ended in resolution. In some few cases one or both tonsils suppurated, and in other still rarer instances ulceration of the pharynx followed. Such are the symptoms of the most severe form of this disease; but it was sometimes so mild as not even to confine patients to the house.

"At any other time this disease would have been looked on merely as an epidemic cynanche; but in this instance there was a very decided connexion observed between it and the prevailing scarlatina. It was, in the first place, even popularly remarked, that a person who had suffered from this cynanche had not been afterwards attacked with scarlatina, and that an attack of the latter was not in any instance followed by one of the former. It was likewise observed that when one member of a family was seized with cynanche, scarlatina soon showed itself amongst some of the rest; and in the same manner, when scarlatina appeared first, cynanche very frequently followed, so that one was considered the forerunner of the other. The following few brief cases may serve to show this connexion.

"Case 1.—Master S. came home from school (where scarlatina had prevailed), complaining of soreness in swallowing, slight headache, and nausea. The next day the tonsils were enlarged, and he complained of greater pain in

swallowing ; pulse quick, skin hot ; *but no appearance of eruption*. These symptoms remained, not getting worse, for three days, when they gradually subsided. Before he was perfectly well, scarlatina seized two of his sisters and his father. In the former, the eruption appeared as an efflorescence and ended in desquamation ; in the latter it was in the form of distinct spots, and without any subsequent desquamation.

“Case 2.—Master O. came home from the same school with scarlatina. Two of his sisters and his brother were seized with it while he was ill. The eruption came out well in the spotted form. At the same time the man and maid-servant were attacked violently with cynanche, which was attended with high fever for several days.

“Case 3.—Visited Mr. B., who had been suffering from severe cynanche for four days. He cannot articulate or swallow ; the jaw is so fixed as to prevent the teeth being separated to more than a quarter of an inch ; fresh tumefaction of the neck ; pulse quick ; skin hot and dry ; breathing hurried ; face swollen and flushed ; eyes suffused (on enquiring if any of the family had scarlatina, I found his son, who was lying in the same room, just recovering from it). After a few days perspiration appeared over the surface of the body, the fever became less, and he was able to open his mouth and swallow a little. On first seeing the tonsils and velum, I found them coated over with a thick white membrane, which extended to the hard palate, and could be raised off easily with a probe.

“Case 4.—P. N. has been complaining of headache and nausea since yesterday, feels a stiffness in his throat, and fears he is getting the scarlatina, as three of his children are only recovering from it. The throat symptoms increased to a great degree, with a smart fever attending them. No eruption appeared, and he was well in eight days.

“It is now almost generally admitted that the eruption is not a necessary symptom of scarlatina, which disease may occur independently of any affection of the skin. In this case the throat is supposed to be invariably affected, and the disease has received the name of ‘scarlatina faucium.’ But it may be a matter of some difficulty to diagnose this scarlatinous affection of the throat from a common cynanche : the fact of scarlatina being prevalent in the neighbourhood, and the probability of the infection of it having been in some way communicated, must in such cases be taken into consideration. If it be found, however, that exposure to the infection of one disease gives rise to the other, and that one proves a preventive of the other, there are fair reasons for concluding that it is the same disease, in the one case affecting the skin, and in the other the throat only.”

In Waterford, Dr. Elliott announces that for several years scarlatina has appeared occasionally in an epidemic form, sometimes assuming great malignity during the congestive stage, whilst its peculiar diagnostic characters were as yet barely discernible. Dr. Bewley, of Moate, mentions that it has not prevailed in his district for eleven years, and that during the whole of this period he had not a fatal case. Dr. Thorpe, of Listowel, has seen very few cases of the disease, and has not had a single death. Dr. Gogerty, of Nobber (County Meath), has had many fatal cases, and the disease has been very prevalent. In Pomeroy, as appears from the statement of Dr. Harvey, the disease has been rare and mild.

Dr. Connor, of Carlow, writes as follows :—“I delayed answering your circular until I could send you the combined opinions of some other practitioners, two of whom agree with me in saying that there is annually a

pretty general attack of scarlatina in this district, but nearly confined to the juvenile and infantile portion of the community ; at least we do not recollect many adults affected with it, and only one fatal case amongst those, and that was the case of a lady just confined, and whose children had the disease, but recovered. As to the malignity of the type, we can say that, whilst five children were carried off by it in one family, others in the same house had it slightly ; and although several lost two or more children, numbers of families have been so slightly affected that, were it not that medical men recognised the disease, it would have passed away without any notice, requiring in some cases only the little patient to remain one day or two in bed. When many members of one family have been taken away, we have had reason to think that the constitution of the sufferers had more to do with the fatal result than the original type of the disease."

Dr. Long, of Arthurstown, states that during the years 1841-2 he has not observed a single case of scarlatina in his extensive district, although at New Ross, which is but ten miles distant, the disease has prevailed in its most malignant form, and been attended with frightful mortality ; but that, in the summer of the year 1839, scarlatina raged with him epidemically for some months. Its general character was at that time of a mild type, yet in some cases the malignant symptoms were present. He had then occasion to remark, that in the same family were to be found individuals presenting well-marked cases of every form of the disease, from the simple fever with bright efflorescence of the skin, to the sloughing tonsils and typhoid type ; and that in many the disease appeared to attack the throat alone, presenting symptoms that would, under other circumstances, have been considered indicative of simple cynanche tonsillaris.

Dr. Russell, surgeon of the County Tipperary Infirmary, reports that in the year 1846 scarlatina was very prevalent during the spring, and assumed a most fatal form. It appeared also to be most infectious, as almost every individual, except those who had the disease previously, who came near the infected were seized with it. The fever was of a typhoid character, and the throat appeared as if affected with gangrenous erysipelas. The treatment that appeared most useful was warm bathing and the carbonate of ammonia with bark. He has had occasional cases of it since, but not at all of the same fatal form.

In Ballina, Dr. Whittaker says the disease has been rare and mild. Dr. Stewart of Lifford states that two epidemics have visited that district within the last six years ; both were very mild. Dr. Croly, of Mountmellick, says " that scarlatina has at intervals prevailed in this locality for the last few years. Latterly it has assumed a malignant and fatal type, especially among children. The eruption was of a dark hue, with early tendency to spaccled ulceration of the fauces and pharynx, cerebral congestion with coma and convulsions."

From Dr. O'Brien, of Ennis, the following particulars were received :—" In reply to your circular relative to the prevalence of scarlatina in this county, I have not many observations to make, as it is only within the last seven or eight years that much of that disease has been seen here.

" My father, who has been forty years in practice in this county, told me that he has seldom seen the disease, and that it never prevailed as an epidemic here. About seven years since a few cases appeared here together, and it did not re-appear until the spring of the year 1840, when it broke out in a large school in this town, and four persons died of it. I was in attendance on them, and was seized with it myself, and had a very narrow escape. It was

evidently brought to the school on this occasion by a boy who had just come from the King's County, and who showed the disease in a day or two after his arrival. It spread with such rapidity through the school, that (notwithstanding the greatest precaution) the establishment had to be broken up for some time. It again reappeared about Christmas in the same year, to a slight extent; was not fatal, and has not been seen since."

In Boyle, Dr. Hall says, it has lately been prevalent but very mild. Dr. Taylor has seen very few cases at Ferns, all of which were mild. Dr. Griffin, of Limerick, writes as follows:—"We had some bad cases of scarlatina in Limerick last winter (1841-2), and about two years ago, but they were few in comparison to the mild cases; and at any time within the last eight or ten years I have not known it to spread extensively as an epidemic. Those who died of the complaint suffered chiefly from the sloughing of the throat; but I saw one young girl die last year on the third or fourth day, apparently from the intensity of the fever and great prostration of strength."

From Dr. Roe, of the Cavan Infirmary, I received the following full and very satisfactory particulars. His letter was dated 29th August, 1842. "Scarlatina," he writes, "has been more than usually prevalent during the last few months. I have only seen two cases of it in adults. Amongst children I cannot say that those cases I met with were unusually severe or unmanageable. The soreness and swelling of the throat, with ulceration, were also very prominent and painful symptoms in several cases I saw; the sore throat appeared almost the only symptom, and the cutaneous affection very trifling and evanescent. I cannot say that the type of the disease here, as far as I met with it, was of a malignant character, nor did it put on that congestive inflammatory form which produces such an awfully fatal disease. I have also seen two or three examples of the dropsical or anasarctous symptoms which sometimes succeed; and in one very fine healthy child, which I had an opportunity of seeing the evening before its death, and of making a post mortem examination, I found the entire cellular substance of the body pervaded with the dropsical effusion, and a very large quantity, amounting, I think, to nearly a quart, effused into the thorax. From the great dyspnoea, and very unequal action of the heart, I presumed there must be structural disease of the heart—which was not the case—and all the viscera, both of the thorax and abdomen, appeared perfectly sound, so that the dropsy was entirely the result or the consequence of the original disease three weeks before, and from which the child appeared to have perfectly recovered.

"Scarlatina, mixed up with small-pox, has appeared also in our poor house, but not of a very fatal or malignant character; and I find from the physician of the poor-house that the scarlatina was rather of a low type, and required cordials, as wine, &c., and that bleeding was had recourse to only in a few cases. Some years ago, when it appeared in an epidemic and very severe form, I had an opportunity of seeing much more of it, and then I found the most beneficial effects from full and early bleeding; and in two remarkable instances, one an adult lady and the other a fine healthy girl, I think it put an end to the disease, and prevented the congestive stage from coming on."

It is unnecessary to give the particulars of the many letters I have received on this subject; but from all may be collected the facts that scarlatina has, generally speaking, prevailed to an unusual extent in Ireland from 1836 to 1844—that it has, in many instances, been singularly rare in districts immediately adjoining others in which it has been equally prevalent—that there is no geological or physical difference in many of the localities alluded to, which

can in any way account for these anomalies—that we are equally at a loss to explain its mildness in some districts in which it has extensively prevailed, and its malignity in others.

Even in this city, during the period of its greatest virulence, whole families have been attacked with the mildest forms of the disease I have ever seen; and I have been assured by many of the physicians connected with our dispensaries, that they have for a certain period met with several cases, all extremely mild; and suddenly the character of the disease has changed, and the cases then coming before them were as remarkable for their malignancy, and undue proportion of mortality. This was seen in a remarkable degree in the practice of Dr. Osbrey, physician to St. Mary's Dispensary, whose very important communication I shall read for you.

"The number of cases of scarlet fever," says he, "which were under my care, from the close of the year 1840, the period at which that epidemic first appeared in my dispensary district, until its decline at the commencement of the present year, amounted to somewhat above two hundred.

"When it first appeared the epidemic was of so mild a character that I treated above forty cases without the occurrence of a single fatal one; merely attending to the state of the bowels and secretions was sufficient to effect a cure. It soon, however, assumed a more formidable character. The cases which mostly proved fatal were those affected with diffuse inflammation of the neck; they were generally children under four years of age. As it may be interesting, I shall describe to the best of my recollection the progress of that affection, together with the treatment which I found to be most successful.

"Those cases of scarlatina in which this form of inflammation presented itself I was usually not requested to attend until some time after its commencement, which generally took place at the decline of the eruption on the third or fourth day. The attending, or I may say secondary fever, was principally marked by the occurrence of cerebral and nervous symptoms; the child either lay in a comatose state, or was excessively irritable and restless, and constantly whining. In those who were a few years older, a peculiar wildness of manner was occasionally observed, and if this were absent, the expression of the countenance was stupid and vacant. A common remark of their mothers was, 'that they did not consider them in their right mind.' The children were affected with tremors of the extremities; the pulse was generally quick, and the tongue furred, but neither invariably so.

"The progress of the inflammation was very insidious, in most cases commencing as an indurated swelling behind the angle of the jaw on one side, which was at first very indolent, without any discoloration of the integuments; but as the affection advanced, the swelling increased much more rapidly, often extending to the opposite side: the integuments then assumed a dusky red appearance, and became very tender to the touch; there was much oedema, so that the part readily pitted when pressed by the finger, and there was an obscure sense of fluctuation communicated to the touch. In the advanced stage of the complaint, sensibility, which was previously great, diminished to such a degree that the child did not seem to suffer much pain if incisions were made into the swelling. When the patient survived till about the tenth day from the commencement of the affection, sloughs frequently formed, commencing in dark purple specks over the surface of the swelling; the sloughing rapidly spread; diarrhoea then set in; the abdo-

men became tympanitic; spots of purpura at times appearing over the surface of the body, with the occurrence of passive hemorrhage from the mouth and bowels. The child either died comatose or exhausted by diarrhoea, in case dissolution was not quickened by the supervention of sudden hemorrhage from some of the large vessels of the neck giving way in sloughing. An attack of convulsions sometimes preceded death, the period of which, unless when precipitated by the exhausting treatment to which it had been submitted previous to my seeing the child, varied from the seventh to the twenty-eighth day, the medium time being about the twelfth day from the commencement of the inflammation.

"In those cases which fell under my observation I did not notice any thing differing from the common, either in the appearance or duration of the eruption, except that it was occasionally somewhat more faint than usual, and that the desquamation of the cuticle did not take place after its disappearance. Though what I have just described was the usual progress of inflammation when it ran a fatal course, yet sometimes it commenced earlier, on the first or second day of the eruption, the fever being of a more inflammatory type, the skin being hot, pulse strong, tongue furred, and much thirst being present.

"It is well known that this disposition to slough in scarlatina is not confined to diffuse inflammation of the neck, and that an inflammation of a similar character may attack other parts of the body. This was well exemplified in two cases which were under my care—one that of a boy, aged six years, in whom scarlet fever immediately succeeded an attack of hooping cough, for the relief of which I had found it necessary to apply a blister to the chest—the other that of a fine child, his sister, aged four, who had received a slight scald in the ham of the left leg; such portions of the vesicated surfaces which had not as yet healed were attacked by the inflammation, they were rapidly covered with ash-coloured sloughs, and the sloughing extended by livid margins. The boy, exhausted by the previous attack of hooping cough, which had been unusually severe, died; the little girl recovered. The treatment, which was the same in both, consisted, locally, in the ulcers being kept constantly covered with fermenting poultices, and in the margins being occasionally touched with strong muriatic acid. The cautious exhibition of mild tonics, and of stimulants, both diffusible and permanent, carbonate of ammonia, of course, being used amongst the former, constituted the general treatment. Another case, which I considered very remarkable, fell under my observation, *in which, simultaneously with the gangrene of the neck, sloughs formed on both corneas, which rapidly extended, involving all the other textures of the eyes.* This case my friend Dr. Battersby saw with me. The destruction of the eyes took place two days before dissolution. In each three of these cases the appearance of the part, when destroyed, closely resembled that of hospital gangrene. I did not notice any depots of purulent matter in the joints, or any other parts of the body.

"Having now described the more formidable characters of the inflammation, I shall state the treatment which I found most efficacious in arresting its progress, and in bringing about the more favourable terminations of resolution and abscess, and shall also take a short review of other modes of treatment that are occasionally resorted to. Mine simply consisted in the constant application of common oatmeal or linseed poultices, supporting the child's strength by nourishing diet, and in the cautious exhibition of permanent

and diffusible stimulants; carbonate of ammonia, as I have already said, being included in the latter. The practitioner should not I think swerve from this line of practice, though he may sometimes be urged by the parents, alarmed at the progress of the inflammation, to treat the child more actively, particularly with respect to the local applications.

“When an abscess forms, the swelling previously diffused becomes more prominent, soft, and fluctuating, there is no pitting on pressure with the finger, and the surface is usually of a rose-red colour. Incisions may be then made to give exit to the matters. The symptoms of general disturbance, such as coma, convulsions, and such others as have been described in such cases disappear, tremors of the extremities alone remaining, and the child gradually recovers from the extreme debility from which it had hitherto suffered. I have said that stimulants should be given with much caution, for when used at all freely they are almost sure to induce convulsions, to which there is a great tendency throughout the progress of the complaint. After the formation of abscess, however, they may be exhibited with greater boldness. In cases where there is much restlessness and irritability, or when diarrhoea has set in, which usually does not take place until the sloughing has commenced, I have given opiates, either in the form of Dover’s powder, or the *pulvis cretæ compositus cum opio*, the doses being carefully graduated according to the age of the child. When the cases became complicated with purpura and passive hemorrhage, it is almost unnecessary for me to say that I gave the mineral acids.

“I have ordered chloride of soda both internally and as a lotion. Its internal exhibition did not appear to be productive of any benefit, but as a lotion and gargle it was highly useful in destroying fetor. When I apprehended internal sloughing, I occasionally touched the throat with muriatic acid lotions by means of a camel’s-hair pencil or a piece of a sponge.

“Having had frequent opportunities of seeing the effects produced by the use of mercury, and also by local bleeding, in the practice of others, I carefully avoided having recourse to such methods of treatment myself; the former, with rare exceptions, inducing purpura, passive hemorrhages, and sloughing, the accession of which is so much to be dreaded, and which are so liable to supervene of themselves; the latter precipitating dissolution by increasing the disposition to coma and collapse.

“I have in some cases made incisions into the swellings extending beneath the fascia of the neck, but I do not consider it good practice in the case of young children, however useful it may be in that of adults, for the following reasons: when made in the early stage of the inflammation, they have a tendency to prevent the occurrence of either of those most favourable results—resolution or abscess; and when made in the advanced stages, unless when abscess or diffuse suppuration takes place, they are of no use; they do not appear to check the sloughing of the integuments. The parents, moreover, to whose feelings such practice is generally repugnant, are very apt to attribute whatever ill afterwards befalls their child to these incisions having been made; a consideration which I think should weigh with us in determining against the practice, when no good is likely to arise from it. In case, however, abscess or diffuse suppuration of the cellular membrane occur, we should not hesitate to make free openings. Diffuse suppuration of the cellular membrane, a result which I have only now alluded to, is almost as formidable, when the children are very young, as gangrene, inasmuch as they are scarcely ever able to bear up against the extensive suppuration, and consequently die of hectic.

"Blisters and mustard cataplasms, merely applied as rubefacients, did not appear to me to be injurious, but I did not place much confidence in them.

"It is obvious from what has been already observed, that we should be most cautious in making a prognosis when we meet this form of inflammation, as it often, when most mild at its commencement, subsequently runs a most fatal course, and when apparently of a most formidable character, terminates kindly. I have known many a practitioner, from mistaking its nature, supposing it to be nothing more than common scrofulous inflammation, to augur favourably as to its termination, when its subsequent course showed how very erroneous such an opinion was. The constitutional symptoms, however, even though we have no very clear evidence of the child having had scarlet fever, will, when carefully attended to, always enable us to form a correct diagnosis of the disease. Perhaps it is from not recognising this disease, which is one of the most formidable consequences of scarlet fever, that such discrepancies have occurred in the returns made by practitioners of the relative mortality of scarlatina in their practice. The children are frequently not brought to them till all traces of the eruption have disappeared, and in some cases, where it has been so faint as to have escaped the observation of the parents, or even that of the physician. In such cases it is easy to conceive that it might be mistaken for a disease *sui generis*, and that the previous existence of scarlatina might be entirely overlooked.

"When sloughing of the integument has commenced, the chances of the child's recovery are greatly diminished, and when it is under a year old, it is, I think, almost hopeless. To have an opportunity of observing the sloughing stage, it is requisite that the child should survive some time. When death is precipitated by injudicious treatment, or if the child does not undergo any, dissolution occurs so early from the secondary fever, that no further local appearances than the more diffused swelling will be observed. I should here mention that, in the worst cases, there is no attempt at suppuration, and the part, when cut into, resembles somewhat the cut surface of a rotten apple.

"Even when resolution or abscess occurs, we must not be too hasty in giving a favourable prognosis; for there is occasionally much subsequent debility, which may lead to a fatal result.

"I have observed instances of this form of inflammation which succeeded other exanthemata. The following case is, I think, an interesting example. It is that of a child aged two years, that had an attack of the natural small-pox ten days previous to my seeing it, and had been treated by another physician, who, on the occurrence of the inflammation of the neck (I understood from its mother), despaired of its recovery; and indeed, when I myself visited it, I had no better hopes. It was then lying in a state of coma, with its head quite motionless and thrown back, a large diffused swelling being behind the angle of each jaw and extending down the neck. The pulse was remarkably quick and weak, the tongue furred, abdomen tympanitic. On the child being submitted to the mode of treatment which I have described, it recovered from the state of coma it was in, and two very large abscesses formed in the situation of the swellings, which I subsequently opened. The tympanitic state of the abdomen was relieved by injections of castor-oil and turpentine. When the sensibility and intelligence of the child returned, it was attacked with convulsions, consisting in constant motion of the extremities and twitchings of the face, which continued for two days. These convulsions I

ascribed to debility, and treated as such. In this case purulent depots formed over the back of the hand and one foot ; also a large one over the scapula. The two former have been absorbed ; but as the one over the scapula still continues, and as there is no chance of its absorption, the recovery of the child is still doubtful. A few spots of purpura appeared in different parts of its body, and it has been frequently attacked with diarrhœa. Its mother states that it was a strong child before the attack of small-pox. It is, however, apparently of scrofulous habit, and had once suffered from rickets."

LECTURE XXIV.

SCARLATINA.—ABSENCE OF ERUPTION.—DROPSY AFTER.

ANY one who has studied our old authors with care, will perceive the identity that exists between *some* forms of our malignant scarlatina and the epidemics described by the name of the "*Ulcerous Sore Throat*,"* and the "*Putrid Sore Throat*."† But in these epidemics, the principal and fatal symptoms were inflammation and sloughing of the throat, ulceration of the schneiderian membrane, attended with profuse ichorous discharges, &c. The eruption was either disregarded, or only mentioned as a curious phenomenon, and death was produced by the "*sore throat*." But, as was before observed, many of our cases died without a single lesion that we could detect—they were poisoned by the virus of the scarlatina.

I shall now bring before you the particulars of a few fatal cases that were lately under my care, from which you will be enabled to form a better idea of the malady. The following notes were taken by Dr. Henry Kennedy, by whom the patient was first seen :—

Case 1.—"I first saw J. K——, aged 14, on Friday evening, March 22, 1842. He had been at school the previous day, but had come home complaining of not being well. His mother had given him an emetic of ipecacuanha, which not only vomited but appeared also to have purged him. When visited about twenty-seven hours from the beginning of his illness, the purging had ceased, but the vomiting continued incessantly. He was throwing up quantities of dark greenish bile, and this occurred whether he took any drink or not. The thirst was insatiable, and the desire was for what was cold; the fever ran very high, the skin hot, pulse 140, and when left to himself he was inclined to rave; he referred his distress to the stomach, and said he believed his throat was sore; on looking into the mouth the internal fauces appeared inflamed, and the tongue was densely loaded, but there was nothing of that specific nature which would lead one to pronounce on the nature of the disease. At this time I looked very particularly to the state of the skin, but no eruption was visible. His position in bed was changed every moment, as he said for the purpose of giving himself relief. I had intended putting a few leeches over the stomach, but at the patient's own urgent request was induced to bleed him from the arm to about seven ounces. A sinapism was applied to the epigastrium, a mouthful of cold water given frequently, and the extremities sponged with vinegar and water. On the following morning (Saturday) all the symptoms had increased in severity, the treatment of the night before had only temporary effect, in fact for about four hours, after which all the symptoms had reappeared. In addition, the body was now covered with an eruption which could not be distinguished from the maculæ of bad typhus fever; it was best marked, however, on the

* Huxham on Fevers, p. 266. London, 1772.

† Fothergill's Works, vol. i. p. 341. London, 1783.

chest and back ; it was quite distinct on the face. The raving was now of a more decided character, and it was more difficult to make him give a direct answer. At this period Dr. Graves visited the patient, and recommended internal stimulants, with blisters to the surface. It is enough to add, that all treatment appeared to be quite useless, and from this time to the period of the patient's death, every symptom went on increasing, the raving becoming every hour more violent in its character, and the pulse rising to 170 and even 180. One or two points are, however, worthy of notice. During the last day of life the bowels were once affected, the discharge quite natural, and from this moment all vomiting ceased. During this day, also, a second crop of eruption made its appearance ; it was perfectly distinct from the first, being of a reddish colour, and the spots much more circumscribed. I have often had occasion to meet with the same since ; it was now that the tongue put on its characteristic appearance. That the nervous system was profoundly engaged there was but too much evidence of, for, though no convulsions came on, I observed strabismus, and the mouth was distinctly drawn to one side. There were also very violent fits of shuddering, almost amounting to rigor ; the eyes were not at all injected. The entire duration of this patient's illness was about sixty-eight hours."

In the patient whose case has been detailed, we have a remarkable example of scarlatina terminating rapidly in death, without the sloughing of the throat, which usually caused death in the epidemics narrated by Huxham and Fothergill.

Case 2.—Miss H——, a strong healthy lady, æt. 28, was attended at the commencement of her illness by Mr. Nicholls ; when I saw her, there were intense redness of the throat, great dysphagia, and pain in swallowing. These symptoms induced me to bleed once freely ; the blood was buffed and cupped to an extreme degree. After the disease had lasted for about thirty-six hours, an eruption of a vivid bright colour appeared. She obtained no relief from the bleeding, the pulse became quicker, debility increased, and she died with symptoms of poisoning in less than two days.

The occurrence of arthritis as a complication of scarlatina we have frequently witnessed in the Meath Hospital. In a man named Pierce, we had the greatest difficulty to save both wrist joints from ulceration. And in another case, the motion of the elbow joint was almost lost from the effects of inflammation.

I have noticed that when any of the viscera became engaged during the progress of this disease, that there is the greatest difficulty in subduing the local affection, and that it runs its course with great rapidity ; this was unfortunately too well illustrated by the case of P. B. attended by Surgeon Smyly of Merrion-square, and myself. The notes of the case were taken by Mr. Smyly :—

Case 3.—Miss P. B——, aged 20, of a full habit of body, in December, 1841, was attacked with a very severe form of scarlatina. The eruption appeared on the 20th, and was very intense in its character ; in the progress of the complaint her head became much engaged, requiring the application of leeches ; her throat also was very bad, to relieve which leeches were again applied. Considerable prostration of strength accompanied the affection from the commencement. On the 30th she was so far recovered that I took my leave.

It may be worthy of remark that her sister, who was first affected with

the disease, had it so mildly that the nature of the affection was not discovered, nor did she require medical aid.

January 9, 1842, I was again called to see Miss B——; she then complained of severe pain in her left side, which she first felt on going to bed, which became so violent during the night as to banish sleep. She had been till then going on as well as possible, recovering her strength daily, and was in excellent spirits. On the 8th, she ate heartily of beef-steaks for dinner, and drank some wine. I saw her sixteen hours after the commencement of the pain, when I found all the lower part of the left lung densely hepatized.

The treatment consisted in repeated cupping, attended each time with much relief, the exhibition of mercury so as to affect the mouth, antimonials; by all which means the acute symptoms disappeared, but no improvement took place in the condition of the lung. Her strength began to fail, and she died on the morning of the 19th of January, 1842.

In this case the most remarkable feature was the rapidity with which the lung was solidified, and the obstinate manner in which it refused to yield to treatment.

The following case was also attended by Mr. Smyly and me; it presents an usual sequela of scarlatina, namely, aphthous ulceration of the anus, which, though not sufficiently pointed out in the late works on practice of medicine, was recognised and described by Huxham, and I introduce our case with Huxham's description, to show more clearly the identity of the two epidemics.

After alluding to the profuse discharge that took place from ulcerated surfaces in the mouth and nostrils, he says:—"A sudden stoppage of this rheum from the mouth and nostrils actually choaked several children; and some swallowed such quantities of it, as occasioned excoriations of the intestines, violent gripings, dysentery, &c., *nay even excoriations of the anus and buttocks.*"*

Case 4.—Master James F, aged twelve, was affected with a very severe form of scarlatina, in July, 1841. The eruption began to appear the second day of his illness, and became very intense in its character, the whole surface of the skin being almost of a uniform redness. The accompanying fever ran very high, demanding venesection to reduce it. The throat presented the usual appearance; but in this case the inflammation extended into the mouth, and we suspected throughout the intestinal canal, indicated by the great irritability of the stomach and bowels, and the *circumstance of the anus presenting the same aphthous appearance that the mouth did.* The inflammation also extended into the left ear, and caused the destruction of the membrana tympani. In less than a month's time this young gentleman was so far recovered as to return to England, and has since enjoyed good health.

In the writings of Huxham and Fothergill you will also find frequent allusions to cases where death was produced by uncontrollable epistaxis, during the epidemic of "sore throat" described by these authors. Thus Fothergill, after speaking of the usual mode of death in these cases, says:—"Though this was the common progress of the disease where it terminated unhappily, yet it often varied from this type, and was attended with very different symptoms. Some had an extreme difficulty of breathing almost from the first; some had a violent cough; some were comatous; others had

* Huxham on Fevers, p. 280. London, 1772.

a delirium ; some died in a lethargic stupor ; *others bled to death at the nose.*"* The following is an example of this form of the disease.

Case 5.—I was called to see the Rev. Mr. C., aged 25, of regular temperate habits, and healthy constitution. He was then labouring under severe fever with sore throat. On examining the fauces I found the tonsils extensively ulcerated. These were touched with nitrate of silver, and the next day they appeared much improved. On the third day of his illness an eruption appeared, neither too red nor too pale ; in short, as favourable as could be wished for, and perfectly normal as to its duration. During all this time the heat was intense ; and on the third day of the eruption the cold affusion was employed, and was followed by marked relief : but the pulse still remained sharp and quick, never falling below 96. In this state he continued till the seventh day of his illness, when epistaxis occurred (to this he had been subject for a long time), and was followed by considerable relief of his head. The epistaxis was not excessive, and from the fact of its being habitual excited but little alarm. About the thirteenth day the fever had almost gone ; his sleep was good, and his tongue moist and clean. At this time a small tumour, situated at the angle of the left jaw, and which had been there from the beginning, was observed to enlarge. The next day it had spread considerably, was very red and painful. The fever increased, the tongue became dry, and his sleep was disturbed. On the sixteenth the tumour was examined and opened by Mr. Cusack.

A large quantity of good healthy pus escaped, and the patient experienced great ease. On the eighteenth day a deeper incision was made by Mr. Cusack, and again a large quantity of good pus escaped ; but on this occasion no relief followed. On the next day the constitutional symptoms were much more severe ; the epistaxis returned, and the tongue was now dry, black, and bleeding. There was no raving, nor was he at any time during the illness in the least delirious.

Notwithstanding that the nares were plugged, and every measure which Mr. Cusack and I could think of employed, the epistaxis continued, the bleeding from the tongue could not be arrested, the tumour in the neck became gangrenous, and on the twentieth day of his illness death terminated his sufferings.

The next very interesting case was communicated to me by Professor Porter, and as it illustrates another sequela of scarlatina, I shall read it for you. There can be no doubt that the hemorrhage originated in the way pointed out by Dr. Porter, and it shows in a convincing manner the assistance in diagnosis which we derive from an accurate knowledge of anatomy. It will also be recollected, that this case differs in the manner in which the bleeding occurred, from that mentioned in a preceding lecture by Dr. Geoghegan of Kildare. The older writers make frequent allusions to examples of this latter form of hemorrhage.

"On or about the 18th of September, 1841, Master ———, aged eleven, was attacked with scarlatina. He was of remarkably fair complexion, thin, almost transparent skin, and hair nearly white. The disease assumed rather a mild form, the eruption came out abundantly, and began to disappear about the evening of the fifth day. The throat was slightly engaged—very little difficulty in swallowing ; but there were three or four external tumours, exactly resembling scrofulous glands about to suppurate, and there was

* Fothergill's Works, vol. i. p. 353. London, 1733.

discharge of puriform matter from both ears, with slight deafness of the left.

"At the end of about ten days he seemed to be progressing favourably as to health; two of the little glands on the left side suppurated and were opened, discharging healthy pus; his appetite was pretty good and his sleep sufficient, but he always rested during the day, and remained awake during the night. The discharge from the ears continued, and he had become quite deaf at the left side.

"Soon after (I cannot be particular as to dates) a gland on the right side suppurated, and was opened. The discharge was healthy; but that from the right ear began to be thin and abominably fetid, the smell evidently indicating its connexion with some diseased bone. He was now totally deaf of both ears. Our communications with him were altogether by signs, and he was becoming paralytic of the right side of the face; all his features being drawn frightfully to the opposite side when he either laughed or cried. At the end of about six weeks, however, he seemed in some respects to be greatly improved. He slept well, he was exceedingly cheerful and even lively, and his appetite almost voracious. He had so far recovered his hearing, that we could communicate easily with him; but the foul discharge continued in great abundance from the right ear, and the paralysis of the face increased. He continued apparently to improve in general health and even in strength until the end of the ninth week, and had occasionally been up and dressed for a few hours in the day, when in the middle of the night a new symptom appeared.

"The child had been asleep, when he suddenly awoke, screamed out 'Oh, my ear, my ear!' when almost instantly a gush of blood took place from the right ear. This blood was florid, and had the appearance of being arterial. It came gushing forth most profusely, as if poured from the lip of a jug or ewer, and was sufficient in quantity to soil several towels before it ceased, which it did rather from the exhaustion of the patient, than from the means employed to control it. I was not called during this first bleeding, but saw him early next morning. He complained of dreadful pain in the left side of the head, resembling hemicrania. The discharge from the ear was a thin fetid serum, mixed with flakes of unhealthy matter, and discoloured with blood, and the paralysis of his face greatly increased, the features being distorted even when at rest. I attempted to plug the ear; but the pressure interfering with the discharge of matter, caused intense pain, and could not be endured even for a few minutes. From this time he continued to bleed at irregular intervals until his death; and as I was present on three or four occasions, I shall endeavour to describe one of the attacks of hemorrhage.

"He seemed to have no previous warning whatever: sometimes the bleeding commencing during sleep, sometimes while he was amusing himself with his toys. He generally gave a single scream at the instant, and then the blood burst forth with a gush that really astonished me. I never saw blood lost so rapidly in any surgical operation I ever witnessed, and only once in an accident where the deep jugular vein had been opened. This bleeding could hardly be controlled by pressure, and the attempt to do so caused intense pain, so that at times the nurse did not interfere, but allowed it to stop spontaneously, which it generally did in about a minute. The blood was always florid. The attacks occurred at irregular periods, and there never was hemorrhagic fever.

"About a week before his death, I observed that the blood was beginning to make its way by the eustachian tube into the pharynx, some of which

passed into the stomach, and some was expelled by the mouth, and then he bled sometimes by one passage, sometimes by the other, and occasionally by both. I need not say that he became pale, ex-sanguine, and exhausted, except to express surprise that any child of his age could have endured so long. The palate and inside of his mouth were as pale as any part of the external surface of his body. Exactly at the end of the thirteenth week from the commencement of his illness, he died after a slight gush of blood.

"There was no post mortem examination, and knowing the feelings of the child's parents I did not ask it; therefore the pathology of this case must be matter of conjecture. I think there can be no doubt there was caries of some portion of the base of the skull, and from the symptoms, I always imagined it to be seated in the petrous portion of the temporal bone. The spot at which the carotid artery enters this bone is immediately adjacent to the bony portion of the eustachian tube, and it is probable that this latter was the original seat of the disease from which it spread until it implicated the vessel. The extraordinary size of the stream satisfied me of its being furnished by some large vessel; its colour showed it to be arterial; its escape by the ear, and afterwards by the mouth and nose, proved its passage by the eustachian tube; and I know of no vessel that would be sufficient to explain all the symptoms, unless the one I have mentioned—the internal carotid."

With reference to the diffuse inflammation of the neck that follows scarlatina, as described by Dr. Osbrey, my experience accords with his; and the recommendation to direct all our efforts to the support of the patient until the period of sloughing arrives, deserves the greatest attention. The following case occurred a short time ago at the Meath Hospital:—A child four years old was admitted on the fourteenth day of its illness, with the integuments in the front of the neck in a state of gangrene. In a day or two the sloughs separated, leaving the muscles of the neck completely bare, and as distinct from each other as if dissected. The common carotids were also laid bare, and could be seen pulsating at the bottom of the ulcer. A few days after, granulations sprung up, and the ulcerated surface soon cicatrized. I have not been able to ascertain if any, or what amount of contraction of the neck followed the healing of the ulcer.

Sir H. Marsh and I attended, not long since, a lady who had been affected for some days with fever and sore throat. She had no eruption on any part of her body; but from the character of the fever, and the peculiar appearance of the throat, we suspected she was labouring under an attack of scarlatina. Her family were very anxious to ascertain the precise nature of her complaint; and I visited her twice a-day for the first four or five days of her illness, carefully examining the skin at each visit, but could not discover the slightest trace of an efflorescence of any description. She continued for several days to suffer from the fever and sore throat, and was at one time in a dangerous condition, but ultimately recovered by great care, and the use of appropriate remedies.

Now I watched this case from the sixth hour after its commencement to its termination, and repeatedly examined the skin, particularly that of the breast, abdomen, and inside of the knee and elbow joints, places in which the eruption shows itself when it appears at all, but could not discover any vestige of it. You will often find a diffused redness about the knees and elbows in cases where the eruption does not appear on any other part of the body; but in this instance there was not the slightest deviation from the natural hue. Yet the result proved that it was scarlatina; for the desqua-

mation of the cuticle, which always attends this disease, took place, and the lady communicated the infection to several members of the family. A young gentleman residing in the house got a bad attack of scarlatina; two of the servants were also attacked, and the lady's father got sore throat; in fact, there could be no doubt as to the nature of the disease. During her convalescence she had desquamation of the cuticle; and this is a point to which I would particularly call your attention. We are taught to look upon desquamation as the result of cutaneous affections of an inflammatory character: and it is an opinion very generally maintained, that in scarlatina, as in psoriasis, the peeling off of the cuticle depends on the peculiar state of the skin produced by inflammation. It is stated that the increased vascularity of the skin occasions a morbid secretion and subsequent detachment of the epidermis, and that the same phenomenon is observed in all cutaneous affections of an inflammatory character. This may be generally, but not universally true; for here we had an extensive desquamation of the cuticle without any eruption, without any previous redness, pain, or remarkable heat; in fact, without any of the phenomena which are regarded as constituting inflammation. This seems to prove that there is something more than inflammation concerned as preparatory to that process which is termed desquamation, and the change which the skin undergoes is not to be looked upon as a mere consequence of inflammation occupying the external surface of the corium.

I observed another curious fact in this lady's case. Since the attack which I have just described, she has been shedding her nails; that is to say, the nails of the fingers are all dropping off, and yet there is no appearance of inflammation of any kind about the hands to explain the occurrence. You are, of course, all aware that the dropping off of the nails is a species of desquamation. From the peculiar structure of the nail, and the mode in which it is formed in the matrix, it does not drop off at once like a scale of epidermis; still I think we are authorised in looking upon the shedding of the nails as a species of desquamation. This affords a very curious subject of investigation, as connected with the history of fever. It is an opinion entertained by many persons, that desquamation of the skin takes place at a particular period of typhus; and that this is not an occasional, or varying, but a constant and general phenomenon. This statement has been put forward most strongly by Dr. Perry of Glasgow; and he is also of opinion that the period in which typhus is most contagious is during the desquamation of the cuticle. It is also asserted that scarlatina is more contagious during desquamation than at any other period of the disease. This is, at least, the popular idea. How true it may be, my experience or observation does not enable me to decide; nor am I prepared to offer anything like an explanation of the occurrence. All I shall say on the present occasion is, that the occurrence of desquamation of the cuticle in typhus, and in cases of scarlatina without eruption, has greatly altered my ideas as to the connexion between it and cutaneous inflammation. I think, at least, that the process of desquamation in such cases is very different from inflammation, and that the morbid action of which desquamation is the result has very little in common with the ordinary process of inflammation of the cutaneous surface.

A gentleman who is in the habit of attending my lectures informs me that he has seen three cases of this form of scarlatina, characterised by the absence of the external efflorescence. They occurred in young persons after puberty, and between the ages of fifteen and twenty-five. Each of these cases exhi-

bited a considerable degree of fever, with increased quickness of pulse, thirst, heat of skin, diminution of the urinary secretion, and, after the first or second day, much depression, which continued for two or three days, and then yielded to treatment. The tongue was moist, but pointed, tremulous, red, and injected. The velum, isthmus faucium, tonsils, and upper part of the pharynx were somewhat swollen, and of a very peculiar dark-red colour; the redness being general, and equally diffused over the whole of the upper part of the pharynx, as far as it could be examined.

But the following case, which was very lately communicated to me by a practitioner of very great eminence in this city, is still more curious. Some years ago scarlatina broke out in this gentleman's family, and attacked all his children with the exception of one young lady, who, although in constant attendance on her sisters during their illness, did not exhibit any symptoms whatsoever of the disease. When all the children had become convalescent, they were removed to the country for the benefit of air, whither she also accompanied them. Here she was, much to the astonishment of her family, attacked with the peculiar anasarca observed in persons who have recently laboured under scarlatina. Her father, under whose observation she had been during the whole time, was very much struck with the occurrence; he paid particular attention to the case, and feels convinced that it was the result of latent scarlatina. This case, connected with those already detailed, is of great interest in a general pathological point of view. It appears to prove the fact, that in some instances diseases produced by contagion do not give rise to the whole train of phenomena by which they are ordinarily characterised.

Let us turn for a moment to some of those diseases caused by the action of animal poisons on the system, as, for instance, measles. The symptoms which generally attend and characterise measles are universally known. After an attack of fever, on the third or fourth day, coryza, sneezing, hoarseness, and cough are complained of, and then a rash appears, first on the face, and afterwards on the body and limbs. But it is not necessary that all these symptoms should appear, and that the sequence of morbid phenomena should be uninterrupted throughout. On the contrary, it frequently happens, at particular periods and in certain constitutions, that some of the most usual symptoms are scarcely observed or altogether absent. You will find this point insisted on by Dr. Bateman, who has given a detailed description of a form of measles in which the catarrhal symptoms are wanting, and which he has termed *rubeola sine catarrho*. Thus we may have pneumonia without cough, and pleuritis without pain in the side. Those who have witnessed the course of epidemic cholera in this country, will recollect that many cases occurred in which vomiting, purging, or cramps were not observed.

If we turn to fever, we find that the animal poison to which it owes its origin generally exhibits a certain number of symptoms congregated together, or observing a determined order and succession; and these we meet with in most of the cases which come before us in practice. But we now and then see fever patients in whom one or more of the most prominent symptoms are absent. Thus occasionally there is no quickness of pulse or appearance of vascular excitement; in some there are no cerebral symptoms; in others no increase in the temperature of the skin. Indeed, I might go through the whole group of symptoms which accompany fever, and show that almost every one of them may be occasionally absent, and yet the fever of a severe and dangerous type. I recollect pointing out to the class last year the case

of a man labouring under chronic enlargement of the spleen. He had been working for two or three seasons in some of the marshy districts of England, and had been occasionally ill, but never had symptoms of regular intermittent; in fact, he had escaped the intermittent itself, but not what are usually deemed the consequences of it. We have been in the habit of explaining the enlargement of the spleen by referring it to the conflux of blood towards the internal organs, particularly the liver and spleen, during the cold stage of intermittent; and we have endeavoured to explain the subcutaneous œdema which follows scarlatina, by attributing it to previous inflammation of the skin and subcutaneous areolar tissue; but the observations and facts which I have now brought forward will show that these opinions were founded on erroneous ideas.

Turning to cases of chronic disease, we find in some, as for instance syphilis, that the poison taken into the system gives rise in most cases to a determinate order of symptoms, *e. g.* bubo, sore throat, eruptions on the skin, nodes, and syphilitic cachexy. Mr. Hunter has been at great pains in determining the order of the parts, and pointing out the tissues which are successively affected, and it is of considerable importance to have correct notions on this point. But, although the number and order of symptoms marked out by Mr. Hunter and others may be observed in most cases, they are not so in all; and the same remark which has been made on the occasional absence of one or more important symptoms in scarlatina will apply with equal force to syphilis. Now, when this morbid poison which excites syphilis does not affect the constitution in such a manner as to occasion the production of all the symptoms which usually characterise this disease, a variety of venereal is formed which often proves a source of great embarrassment, not only to the young and inexperienced, but even to the senior members of the profession.

It is of great importance, in a practical point of view, to bear in mind the general proposition I have announced, *viz.*, that in both acute and chronic diseases *a constitutional affection may display its existence by only one or two of the numerous symptoms which usually accompany it*; and this occurrence seems more frequent in the case of diseases produced by contagion and morbid animal or vegetable poisons, than in the case of maladies generated by causes developed in the system itself.

The case of William Young, who was admitted on Wednesday last, has some claims to your attention, and demands a few observations on my part. This boy, who is about twelve years of age, had an attack of scarlatina some time ago, and had been dropsical for a week or ten days at the period of his admission. He was somewhat feverish, had thirst, heat of skin, and slight headache, cough, and difficulty of breathing, and, on making an examination with the stethoscope, we detected numerous bronchial rales; his lower extremities were anasarcous, and he had some effusion into the peritoneal sac. We could not ascertain exactly the time when this train of symptoms commenced, but it is very probable that it was a week or ten days after the disappearance of scarlatina. When patients who have been recently labouring under an attack of scarlatina take cold, the anasarcous symptoms appear in a very short time after the attack; but, even where they are not exposed to cold, the dropsy appears generally about ten days or a fortnight after scarlatina, and is very often accompanied by some pectoral affection. The disease sets in with febrile exacerbations more or less marked; anasarca of the extremities is next noticed, and at the same time the patient has slight cough and difficulty of breathing, which generally proceeds from congestion of the bronchial

mucous membrane, but may be the result, though less frequently, of pleuritis or pneumonia.

If called to a case of this kind in the commencement, and where the patient is not greatly exhausted by previous disease, the treatment is exceedingly simple. By opening a vein in the arm, and abstracting a quantity of blood proportioned to the age and strength of the patient, you remove the inflammatory state of the constitution, and arrest at once the anasarcaous and pectoral symptoms. It may occasionally happen that active measures of this kind cannot be taken, in consequence of the great debility of the patient from previous disease; but, generally speaking, cases of anasarca after scarlatina bear antiphlogistic treatment well. It is not after cases of violent scarlatina, or where the patient's life has been in imminent danger, that the supervention of dropsy is most commonly observed. The majority of dropsical cases of this kind are met with in patients who have had the disease mildly, and without any remarkable intensity either of the local or general symptoms. Hence venesection is borne well, and its performance attended by the most decided good effects, particularly where the dropsy is complicated with pleuritis or pneumonia.

In the case before us, however, being uncertain as to the exact duration of the disease, and finding several symptoms present indicative of weakness, we were obliged to proceed with more caution. The boy had been ill a week, and appeared to be under the influence of digitalis administered before his admission, for his pulse was intermittent and wavering. Under these circumstances, I determined to limit the antiphlogistic measures to the application of a few leeches over the abdomen. I did this with less hesitation, as an accurate examination of the chest showed that there was neither pleuritis nor pneumonia present. The internal remedies were calculated to increase the secretion from the kidneys. The boy's urine was remarkably albuminous, and of the specific gravity of 1027. This is a point worthy of remark. In many cases of dropsy after scarlatina, the urine is albuminous. Now, almost every case of this kind will get well, and, as convalescence progresses, you will observe that the urine ceases to be albuminous. These facts, of the truth of which I can speak with the fullest confidence, are quite sufficient to show that those persons are wrong who assert that albuminous urine is always the result of organic disease of the kidneys. Albuminous urine is here, as Dr. Blackall observes, merely an indication of a peculiar inflammatory condition of the whole system, and not of degeneration of the kidneys.* I may observe, however, that this is not invariably the case; for I could point out examples where albuminous urine is connected with an apparently opposite condition of the system, in fact, a condition demanding the use of generous diet and tonics.

Hence there must be great diversity in the treatment of dropsy with albuminous urine. Where it occurs after scarlatina, and is accompanied by febrile symptoms, it is best treated by the lancet, nitre, purgatives, and digitalis; but where it occurs in chronic cases, without any remarkable excitement of the vascular system, without organic disease, and with more or less debility, it requires to be treated with tonics, generous diet, and full doses of opium. In the present case I only applied a few leeches to the belly, and kept the bowels gently open for the first few days, being deter-

* These opinions have been since advocated by Dr. Burrows, in his admirable essay on Scarlatina, published in the *Library of Medicine*, vol. i., and which I feel great pleasure in recommending.

mined to wait until the pulse became regular before I ventured on any decided plan of treatment. I then ordered mercurial frictions to the abdomen and axillæ, and gave mercury internally, combined with small quantities of digitalis. He also got a draught twice a day, composed of carbonate of soda, tincture of squill, and syrup of orange peel. These remedies we shall continue for some time, carefully watching their effects.

From the state of weakness this boy was in at the period of his admission, and the length of time the disease has lasted, I have not thought it advisable to bleed him. When cases of this kind become chronic, they are very difficult of cure, and require very delicate management. You will frequently have to run through the whole list of remedies employed on such occasions, before you can hit on one that proves successful. I recollect a case of this kind, in which the anasarca was extreme, and the boy's legs were enormously swollen; the dropsy was accompanied by scanty secretion of urine, but without any distinct febrile excitement. After having used every remedy I could think of for nearly three months, without any benefit, I resolved to try the effects of cold affusion, from which I had experienced much advantage some time previously in another case. I ordered a large vessel filled with pump water, in which a quantity of salt had been dissolved, to be poured over him twice a day, for the space of two or three minutes each time, immediately after which the boy was wiped perfectly dry and put to bed. The good effects of this measure became soon evident; a copious discharge of urine took place, the swelling of the limbs subsided, and in about six or seven days the child was able to run about as usual.

This case went on unfavourably, and the boy died, after lingering several weeks in a state of extreme dropsical swelling, and great suffering, distention, and dyspnoea. As his urine continued highly albuminous throughout, we were excessively curious to learn what was the condition of his kidneys. The post mortem examination was made a few hours after death, and the kidneys were found in every respect healthy; their size, shape, consistence, and colour were perfectly normal. The long-continued presence of albuminous urine, in a case where no such state of kidney existed, forms conclusive evidence that this state of urine is not necessarily the result of that renal degeneration first described by Dr. Bright; the occurrence of one positive exception is sufficient to disprove such a conclusion, even though supported by a thousand cases, and, consequently, when albuminous urine in chronic dropsy is found to occur along with Bright's kidney, I consider this particular state of urine and of kidney as depending upon different causes, which often coexist in chronic dropsy, and consequently I regard albuminous urine as a sign of Bright's kidney, but not as its result.

It has been already observed that anasarca seldom occurs after severe and dangerous scarlatina, but it is not unfrequent as a sequela of the very mildest forms of that disease; a fact of which every practitioner should be aware, and a knowledge of which should prevent us from pronouncing a patient out of danger until the period during which dropsy may supervene is passed. To impress the necessity of caution, I may mention that I have seen several cases of scarlatina in young persons and children so mild as not to require confinement to bed, and yet followed about the eighteenth or twentieth day by anasarca; this usually yields to treatment without much trouble, but in some patients, and without our being able to assign any cause for it, the anasarca increases rapidly, the pulse rises, and in a few days is excessively rapid, from 130 to 150, becoming hourly weaker and weaker, while the heart's action is

strong and tumultuous ; the skin is hot, and in many individuals inflammatory symptoms manifest themselves in the head, chest, or belly, and the patient is carried off by internal inflammatory effusion into one or other of these cavities. Other cases are more treacherous, and the approach of danger is not indicated by anything but the rising of the pulse, and the rapid increase of the dropsical effusion, soon to be followed by convulsions that succeed each other until death closes the scene, a termination so much the more unexpected, as these cerebral symptoms have not been preceded by the least headache, or any perceptible affection of the functions of the brain !

In addition to the remedies already mentioned, I can speak with the greatest confidence of the utility of hydriodate of potash in the form of anasarca we are now treating of ; and I may add, that I have found the following line of treatment more successful than any other in the malignant forms of scarlatina—local bleeding by leeches when necessary, wine and carbonate of ammonia freely given, with camphor mixture. In some cases, attended with intense heat of the skin, the cold affusion has given great relief ; in others it has failed.

LECTURE XXV.

INTERMITTENT FEVER.—DISEASES WHICH SIMULATE IT.—THE MALARIOUS FEVER OF AFRICA.

I PURPOSE devoting to-day's lecture to the consideration of some points connected with intermittent fever, most of which I was the first to observe and describe. I will first read for you the notes of a case of intermittent fever reported by Mr. Power :—

"Mary Gannon, aged 44, was attacked by intermittent fever about the middle of September last. The paroxysms occurred twice every day, one in the morning, the other in the afternoon, for the space of ten days, after which, owing to medical treatment, the evening one disappeared. On the 10th of October she was admitted into the Meath Hospital, and was placed under the care of Dr. Stokes, who prescribed small doses of sulphate of quina, under the use of which the fit became tertian, but soon afterwards returned to the quotidian form. On the 1st of November she became a patient to Dr. Graves, and was put on large doses of the sulphate of quina. On the 7th of the same month the fit again assumed the tertian form, in which state it continued until the 17th, although the dose of quina had been increased to a scruple and a half in the day. She was then bled to $\bar{x}xviij.$, by which the duration of the paroxysm was lessened, and the interval between it and the succeeding one increased by twelve hours. She was again bled, and the fit became quartan. Venesection was repeated for three times, but without any other sensible effect than a curtailment of the duration of the existing paroxysm. Her strength now became reduced, and she was ordered to take four drops of the liquor arsenicalis in half an ounce of mint water, three times a day. Since she commenced taking the arsenic, the violence of the paroxysms has been gradually subsiding, and strength and appetite are returning; at present the fit presents scarcely any other characters than those of a slight shivering."

Now, what is the definition of a quartan ague? According to Cullen, it consists of "*paroxysmi similes intervallo septuaginta duarum circiter horarum; accessionibus pomeridianis,*" that is to say, the attacks must be similar, there must be an interval of seventy-two hours between them, and the fit is to come on in the afternoon. Let us examine how far the characters of the present case coincide with this definition. Latterly, she had seven attacks with a precise interval of seventy-two hours; in the next place the attacks were similar; so far, so good; but the accessions of her paroxysms were in the forenoon and not in the afternoon, for they generally came on about eight o'clock in the morning, and in this respect accommodated themselves to our convenience, for we could be here to witness them. It is very true that we generally find the paroxysm of quotidian in the morning, of tertian in the middle of the day, and of quartan in the evening, and also that one may pass into the other; but to this I do not attach much importance. Here the disease evidently terminated by becoming quartan. A question arises as to what was

the nature of the fever in the commencement? Was it any variety of quartan? That is, was it quartan disguised under the type of any other species of intermittent? In the beginning, she had two paroxysms every day, constituting what has been termed the *quotidiana duplex*, a disease which is common enough, though it has not been noticed by Cullen in his *Nosology*. The nearest approach which the first form of our case makes to the acknowledged quartan of authors, is to the *quartana triplex*, where we have the fit coming on three times a day, with every fourth paroxysm similar. But you perceive plainly that Gannon's fever, in its first form, is not reconcilable to any known type of quartan ague.

Now, what was the effect of the remedies employed? First, to make it assume the form of a simple quotidian, and, as a still further improvement, resolve this into a *tertian*. Here we have an argument against the supposition of a concealed quartan, for an interval of 48 cannot, by doubling, be converted into an interval of 72. But the effect of remedies, nevertheless, produced this anti-nosological conversion, for the first bleeding in the cold stage made an addition of 12 hours to the tertian interval; and a second bleeding added another 12 hours, and then we had the quotidian interval complete. This was indeed a *bit-and-bit reform* of a double quotidian into a single quartan.

Let us review the length of the intervals in a series of numbers. First, it was 12 hours for the space of 10 days; next, 24 hours for several days; then, 48 hours for several days; again, 24 hours for several days; then 48 for several days; then, 60 for one day; and, lastly, 72 for seven days. From this, I think we may conclude, that the *unit* from which we ought to set out in calculating intervals should be 12 hours between the accession of one attack and the accession of the next. This is the *atom* on which all our computations must be founded, for its multiples include all the varieties of intermittent fever. It would appear that instances where the fit comes on earlier than was expected, or is postponed beyond the customary period, would go to invalidate what I have mentioned. Such cases, however, I look upon as only transition states to more permanent varieties.

In many cases of quotidian, it has been observed by nosologists, that every second fit is more severe, and hence they have termed this form the *tertiana duplex*. The chief argument in support of this opinion of quotidians becoming tertians is that, under the salutary influence of our remedies, they become tertians before they cease altogether. In answer to this, it may be observed, first, that this is not always the case; secondly, when it does take place, it is because the days of the least severe fits are of course those on which they soonest cease, in consequence of the exhibition of bark, or sulphate of quina; for it often happens that these medicines do not remove the aguish fits entirely and at once, but gradually, and, as it were, by wearing down the paroxysms. Thus, then, a quotidian such as we have described must, if gradually cured, before a complete cure be effected, observe the tertian interval; but still it is not a true tertian at any period of its duration.

Hectic fever notoriously has intervals of twelve hours, and it may be observed, that many circumstances corroborate the opinion, that in naming and classifying diseases, it is more consonant with the laws that regulate the diurnal revolutions of the animal economy, to use, as our period, twelve hours, whose multiples give rise to the different intervals of agues, than to assume twenty-four hours as the term from which we are to commence our calculations. Thus the state of the pulse, according to the laborious investigations of Nick, have shown that a regular revolution, as to its frequency, takes place every

twelve hours, and the same result has been made with regard to the intensity of the respiratory process. We all know that there is a considerable difference between the nervous and calorific powers of the body during the twelve hours we spend in active employment and awake, and those which are chiefly passed in tranquillity and repose.

As the average period of day and night respectively is twelve hours, in the same manner equivalent spaces of time seem to be destined for the successive and alternating revolutions of the living system. It would be extremely interesting to consider what influence their adoption might have in our calculations concerning the crisis of continued fevers. We would not then count three days and a half, but seven half days; we would not say seven days, but fourteen half days. If this method were adopted, many of the apparently anomalous critical effects and critical terminations, in continued fevers, would, I have no doubt, become strictly conformable to some regular law of periodicity. To arrive at a knowledge of this law would be of the greatest importance, and would tend much to render our knowledge of fevers more accurate, and our treatment more efficacious. Those who entirely deny the critical period must be either very superficial observers or very indifferent practitioners. In private practice, where the precise commencement of the attack can be ascertained, a *crisis*, or an obvious attempt at a crisis, takes place often on the reputed critical day, occasionally on others; and if the treatment be judicious, it seldom happens that a fever terminates without either. Within the last year I have seen two cases in which a decided and perfect crisis took place on the forty-second day. In another case the salutary crisis took place on the thirty-fifth day. The first of these cases I saw along with Dr. Stokes; the second, with Dr. Plant; the third, with Mr. Rumley. In another case, which I attended with Mr. Kirby, there was an obvious but unsuccessful effort at crisis on the seventh, fourteenth, twenty-first, twenty-eighth, and thirty-fifth days.

I must admit that I have seen perfect crises on days not reputed critical; but I am convinced, that if the method of counting by half days and not by days were adopted, the exceptions to the occurrence of crisis would be much less numerous. The nature of a crisis has, I think, been never truly explained, to me it appears evident that all the phenomena which attend this curious change prove that when a continued fever terminates by crisis, *it is by being converted into a fever of a new type and shorter duration*. A well marked crisis comes on almost like a fit of the ague; it is ushered in by great collapse, coldness, and even sometimes by rigor. This is succeeded by a hot fit, and that again by a sweating stage, copious deposition in the urine, &c., and then the patient is found free from fever. Is it not probable, therefore, that the crisis is not merely the termination of the former fever, but a new fever, as it were, superadded to it, for the purpose of exciting a change in the system, attended by such a powerful action of another kind, that the former chain of morbid actions is broken, and the tendency of the new fever to terminate in health is thereby allowed to prevail?

To many, I am aware, what I have said may seem fanciful, but to a close and candid observer of nature this hypothesis may not appear altogether unfounded.

I shall not detain you, gentlemen, in making any remarks on the treatment pursued in Gannon's case. You have seen how the sulphate of quina changed the type of the fever, and you observed how completely the *liquor arsenicalis* succeeded in removing the disease, after other remedies had failed.

It is to be recollected, however, that considerable advantage was derived from venesection in the cold stage, and it is probable that this treatment by the lancet was a useful preparation for that by arsenic. It has been supposed that bleeding, during the cold stage of ague, produces a favourable effect, in consequence of its relieving the internal sanguineous congestion. This hypothesis, however, does not appear well founded, for the utility of venesection is by no means confined to those cases of intermittent fever, in which the cold stages are attended with an evident diminution in the external circulation, denoted by a shrunk countenance, cold and pointed nose, and a pale corrugated skin. In such cases it is very reasonable to conclude, that the internal organs must labour under sanguineous congestion, as long as the quantity of blood in the periphery of the body is diminished; but this obvious deviation from the proper balance of the circulation is not observable in every case; and in that related above, the temperature of the external parts was increased at the very moment that the violence of the rigor was greatest, while at the same time the extremities, face, and general surface of the skin appeared to enjoy a more than usually abundant and active circulation. We must, therefore, refer the benefit derived from the venesection to some other cause, most probably its energetic action on the nervous system; it is to this we must attribute its effects in stopping the rigor and lengthening the intermissions.

That the rigor of ague is an affection chiefly depending on the nervous system may be proved by many circumstances, but by none more strongly than by the following fact, quoted from a collection of Notices of Russia, published in the *United Service Journal* for January, 1833:—

“In Kasan these fevers are quotidian or tertian, very rarely quartan, and they differ from the agues of other countries in this respect, that the patient experiences scarcely any shivering, but feels a violent twitching in the spine, which is soon followed by excessive heat and violent headache, during which the pulse beats like a hammer. For this fever the Russian physicians resort to no other remedy but bark.”

The following description of the Russian province, so fertile in ague, is well worthy of your attention, and I shall make no apology for reading it to you:—

“The summer in this country is further remarkable, inasmuch as from the end of May to the beginning of September no rain falls, and thunder storms are extremely rare. This phenomenon is doubtless owing to the flatness of the country. For five hundred miles and more around Perm and Kasan, there is not a hill of any consequence, and the whole tract from Kiew to Ural, for the breadth of five hundred miles, may be called a plain, only here and there interrupted by ranges of gentle hills. The extraordinary fertility, especially of the government of Kasan, is occasioned by the inundation of the Wolga, which overflows annually at particular seasons, as regularly as the Nile in Egypt, and converts the whole country, to the distance of ten miles or more from its bed, for five or six weeks, into an immense sea. These inundations of the Wolga, and the other large rivers, Witjatka, the Kama, the Kinel, the Irgis, &c., which discharge themselves into the Wolga, render the countries through which they flow at once lively and fertile. At such seasons you may sail, either for pleasure or upon business, in large two-masted vessels, carrying from six to ten guns, over pastures and corn fields, to the neighbouring towns, which on this account are all situated upon heights; and when the waters have withdrawn into their accustomed channels, the ground forsaken by them is covered, often a yard deep, with a fertilising mud, in

which, during the hot season, all vegetables grow rapidly and vigorously as in a hot-house. At the same time pools are left behind in the low grounds, where the water stagnates for several months, becomes putrid, and generates malignant fevers in the months of July and August, in these otherwise healthy countries. The government of Ufa, particularly, is visited about that time by an intermittent fever, *which attacks the patient every seventh day only*, but is so violent that it generally proves fatal."

If this account be correct, and indeed there can be little doubt of its accuracy, a new species of ague must be established, and to the quotidian, tertian, and quartan must be added a fourth type, whose attacks return every seventh day.

In Ireland we seldom meet with cases of ague with paroxysms so violent as to endanger the patient's life. I lately saw, however, a case of this nature. I was sent for in a great hurry to visit a gentleman residing in the neighbourhood of Donnybrook; he had slept well until four o'clock in the morning, when he was awakened by a general feeling of *malaise*, shortly after which he complained of chilliness, some nausea, and headache. After these symptoms had continued about an hour, his skin became extremely hot, the pain in the head intense, and drowsiness was complained of, which soon ended in perfect coma, with deep snoring and insensibility; in fact, he appeared to be labouring under a violent apoplectic fit. He seemed to derive much advantage from bleeding and other remedies, and to my surprise was perfectly well when I visited him in the evening. The day but one after, at the same hour, the very same symptoms returned, and were removed by the same remedies. I must confess that I could not explain, in a satisfactory manner, the perfect freedom from all cerebral and paralytic symptoms, after two such violent attacks of apoplexy; but when a third attack came on, I then saw that it was a case of the *tertiana soporosa* of nosologists, and I prevented the return of the fits by the immediate exhibition of large doses of sulphate of quina.

Let me now direct your attention to the case of a sailor who has been recently discharged. This boy was one of the crew of a vessel which returned lately from the West Indies, and was exposed to great hardship during his voyage. Boys in his situation suffer a great deal of fatigue and rough treatment; they are the drudges of all on board, and it is impossible to conceive what privations they endure. When the vessels arrive in unhealthy climates, they are generally the first who fall victims to the prevailing malady, and such was the case with this lad, who got yellow fever immediately after his arrival at the West Indies. From this he recovered, but on his way home was attacked with irregular intermittent, which lasted for a considerable time. He had no treatment, and the disease subsided spontaneously, leaving him extremely weak and emaciated. He was, however, obliged to work as usual on his passage, and he arrived in Dublin about three weeks since, debilitated, thin, and with a countenance expressive of long-continued suffering. He had on his admission that peculiar hue of skin which often follows tedious intermittents, and which those who have once seen will always recognise with facility. This colour is to be distinguished from the hue of light jaundice—it is what has been termed a clay colour. In the present instance it was mixed with a faint tinge of jaundice, and on examining the stools we found that they contained scarcely any bile. He had no fever; his pulse was rather slow and regular; he complained of lassitude; his urine was deeply tinged with bile; and his belly tumefied. On examining him, we found that the abdominal tumefaction did not depend

on the presence of fluid in the peritoneum : it was produced by enlargement of the liver and spleen, intestinal congestion, and tympanitis.

Here was a case of what has been vulgarly termed ague-cake ; that species of congestion and enlargement of the liver and spleen which is apt to accompany the paroxysms of an intermittent, and in some cases to remain after the disease has subsided. You are aware that some persons, during the paroxysm of an intermittent, complain of pain in the right hypochondrium, but more frequently in the left, and on examination the liver or spleen is found increased in size. If you take the trouble of reading the experiments which have been made with the view of illustrating the functions of the liver and spleen, you will have a good idea of the facility with which enlargement of these organs, but particularly of the latter, may take place.

The spleen undergoes very remarkable changes, even in its natural state, during the process of digestion, and there is a great difference between its size when an animal is fasting, and its size when an animal has taken food. Indeed, it is surprising how rapidly it will become filled with blood, and how quick the transition is from a state of collapse to a state of congestion. It is easy, therefore, to conceive how the spleen may, during the paroxysms of an intermittent, particularly in the cold or congestive stage, become manifestly enlarged. The increase of size, however, never occurs to such an extent in the liver ; unlike the spleen, its magnitude remains nearly the same, and its volume does not vary, like that of the spleen, with the time of day or the period of digestion. It is obvious, therefore, *à priori*, that the spleen should be more frequently the seat of congestion than the liver, and that its enlargement should be more distinct and palpable.

But it is not in the liver or spleen alone that any congestion occurs during an aguish paroxysm ; it may take place in any organ ; and this, in a practical point of view, is worthy of being borne in mind. Thus, in a case which I attended, the patient got intermittent of a tertian type ; during each paroxysm he had some distress about the chest, and slight cough, but these symptoms disappeared during the intervals. As the disease, however, went on, the fits of coughing and dyspnoea increased, and the sulphate of quina failed in arresting the paroxysms. The pulmonary congestion became gradually more marked and permanent, and no longer disappeared during the intervals ; finally, inflammation of the lungs took place, and the patient died with extensive hepatisation. This happened several years ago, when the old notion of connecting the cold stage of ague with debility was universally prevalent, and before the practice of bleeding for the relief of visceral engorgement had been introduced. Subsequently, the practice of bleeding in the cold stage, as introduced by Dr. Mackintosh, was tried on an extensive scale in the Meath Hospital, and it is a practice which I can strongly recommend in those cases where there is recurring inflammation of some internal organ. It is not a mode of treatment applicable to all cases, and in mild cases, unaccompanied by extensive congestion of any viscus, it is totally unnecessary ; but where an important organ is threatened, it is a valuable remedy, and has on some occasions cut short the paroxysms altogether, or rendered them much milder and more manageable.

Sometimes ague is accompanied by symptoms of congestion and inflammation of some internal organ during the paroxysms ; and yet, by giving sulphate of quina, you will succeed in arresting the intermittent and the visceral disease at the same time. I recollect the case of a boy who was under treatment here for ague, and who, during the paroxysms, had severe

bronchitis with dyspnoea. The cough did not leave him even during the intervals, but it was much milder ; I was, however, doubtful whether the case would admit of the exhibition of sulphate of quina, from the violence of the pulmonary symptoms during the fits. I determined, after some time, to try the quina, and I found that it stopped both the intermittent and the bronchitis. It is to be observed, however, that in this case the bronchitis was of a chronic character ; and I believe that in all cases of ague, accompanied by visceral derangement, where quina succeeds in curing the disease, the inflammation is either of a trifling description, or is one of a chronic nature. Where the visceral derangement is great, quina will not succeed, and hence it is of great importance, in the treatment of ague, that you should carefully attend to the state of the internal organs.

There are several forms of disease which simulate intermittent in a very remarkable manner ; and as this may lead to very dangerous errors, it is necessary on all occasions to make a strict inquiry into the origin and history of the complaint. Some forms of hectic assume the intermittent character, and have been frequently mistaken for ordinary ague. Of this I had lately a very striking instance in the case of a lady who came from the county of Limerick, to consult me for what was stated to be an attack of irregular intermittent. She had been confined in August ; had been feverish after her accouchement—the consequence, she believed, of exposure to cold—and got a slight cough. This continued, but without any expectoration, for two or three weeks, and then she was attacked with fever of an intermittent character, and exhibiting a well-marked tertian type. She began to take quina, but this aggravated the cough very much, without having any effect on the paroxysms. Various other remedies were also tried, but their only effect was to render the paroxysms more frequent and irregular. The moment I saw her, I was convinced that she was labouring under some visceral disease. I examined her chest, and found dulness under the right clavicle with tubercular crepitus. Her cough had been dry until she came to Dublin, but now it became suddenly moist, and a distinct gargouillement could be heard. The apparent intermittent was nothing more than phthisical hectic ; and Dr. Stokes, who was called in, came to the same conclusion. I recollect having observed something of the same kind in a case which I attended some time ago with Sir Henry Marsh. The patient had well-marked intermittent, and we treated him for it ; but the sulphate of quina, and the other remedies which we employed, had only the effect of converting the fever into remittent. On a sudden, the gentleman, without having made any complaint in the side, or anything indicative of derangement of the liver, became suddenly jaundiced, and sank rapidly. On dissection we found seventeen or eighteen small circumscribed abscesses in the substance of the liver. The intermittent hectic here depended on interstitial inflammation of the liver—a disease which is generally of a latent and incurable character.

I need not refer here to certain forms of fever which accompany disease of the brain and of the urinary system, and which are remarkable for their intermittent character. There is, however, one form of anomalous intermittent, of which it may be necessary to say something. I allude to that species of ague which seems to be exclusively confined to females of a nervous habit—at least, I have never met with it in any others. Persons of this description, after an accouchement, or some acute disease, or in consequence of violent mental emotions, will sometimes get into a peculiar state of health, in which they are liable to recurring periodic attacks or fever. Some time since Dr.

Stokes called me to see a lady who, shortly after confinement, had got an attack of well-marked tertian. She had, at the regular time, severe rigors, followed by acceleration of pulse, heat of skin, and profuse sweating. When the paroxysm was over, she felt tolerably well, but still there was much excitement of pulse, and the intermissions were anything but perfect. Sulphate of quina had been tried by the accoucheur in attendance, but had failed. On examining the case, I found that the lady was of a decidedly nervous and hysteric habit, and advised the use of nervous and anti-spasmodic medicines. A mixture containing musk, camphor, and ammoniated tincture of valerian was prescribed, and the intermittent symptoms rapidly disappeared.

But to return to the case of this boy. How are we to treat this ague-cake? The disease has not as yet proceeded so far as to produce ascites; but if permitted to run on, it would soon cause effusion into the peritoneal cavity. In a case of this kind, a great deal will depend on whether there is any fever present or not. If there is no remarkable excitement of pulse or heat of skin, general antiphlogistic means will be unnecessary, for any local tenderness or irritation can be relieved by local bleeding. In the case before us, there was a slight degree of tenderness, and we applied leeches once with benefit; but we did not apply them over the abdomen—they were applied to the anus, because it is well known that leeches applied in this situation have a remarkably good effect in removing intestinal congestion, and consequently in relieving hepatic engorgement. Those who have remarked the relief which a flow of blood from piles gives, in cases of hepatic engorgement with dyspepsia, will recognise the value of depletion of this kind, and will imitate the natural mode of relief by art. Hence the use of leeches applied to the anus in cases of intestinal congestion and hepatic or splenic engorgement. There is no necessity here for applying a great number of leeches—three or four every second day will be quite sufficient, and we have found this number answer every necessary purpose. In addition to local bleeding and attention to diet, I ordered this lad to take a few grains of blue pill once a day, not with the intention of affecting his system, but merely with the view of keeping up the free action of the bowels. I continued the mercury only as long as the tenderness of the liver remained; for experience has shown that, in those cases of ague-cake where there is merely enlargement of the liver without tenderness, mercury is a bad remedy.

In cases of this kind, where the stage of active congestion is past—where there is no fever—where the tenderness is removed, and nothing but the increased size of the liver remains—how are you to accomplish a cure? First, by inserting one or two setons over the liver; and, secondly, by the use of iodine and tonics. The use of setons in cases of this description is well known, and needs no comment. I recollect the case of a lady, who, after several attacks of jaundice, got chronic enlargement of the liver. The right lobe of the liver, which was the portion chiefly affected, extended down towards the crest of the ilium, and was excessively indurated. This state had occurred after the patient had used mercury, and had been copiously salivated. Two setons were inserted over the region of the liver, and these produced rapid diminution of the enlargement, and a perfect cure.

With respect to tonics, I may observe that they prove extremely useful in chronic enlargement of the liver and spleen. We are in the habit of using, in this hospital, a combination somewhat similar to the celebrated Bengal spleen-powder; it consists of vegetable and mineral tonics combined

with a vegetable purgative—as, for instance, aloes—and we have seen the best results from its use. With respect to iodine, it is a valuable adjuvant in such cases, particularly where the system has been much deranged, and where mercury would be likely to run down the patient. Here iodine gives vigour to the constitution, and tends in a very remarkable manner to promote the absorption of the morbid products on which the enlargement chiefly depends.

Before concluding this lecture, I wish to bring before you some singular facts respecting the liability of the human race to be affected with disease. You are aware that certain affections are peculiar to warm climates, and that these affections prove to an extraordinary degree fatal to whites who may come within the operation of the causes by which they are produced. These causes, more especially as regards Africa, are generally believed to be of malarious origin; just such causes as in colder climates give rise to agues, but in the torrid zone produce a fatal form, not of intermittent, but of remittent fever. How comes it to pass, however, that this peculiar form of fever is almost exclusively confined to Africa, occurring on both its western and eastern coasts, while it is not met with off the shores of South America, where the same physical causes, so far as relate to large swamps with quantities of decaying vegetable and animal matters, apparently exist? Again, in the published accounts of the recent expeditions to Borneo (I especially allude to those of Captain Keppel, in the *Dido*, and of Sir Edward Belcher, in the *Samarang*), we hear nothing of the crew being attacked with this fever, although they were constantly exposed to malarious emanations in rivers with swampy banks, lined with mangroves, in which there were low tides, and in the self-same latitude as Cape Coast.

Let us also, for a few moments, contrast the unhealthy condition of inter-tropical Africa with other portions of the same continent. When I come to speak of the pernicious effects of the western coast on our sailors, I shall, in the case of the *Eclair* steamer, give you a very recent illustration of the deadly character of the emanations by which the coast fever is supposed to be originated. I need scarcely say that the same effect is produced, if possible, in a tenfold degree amongst the *white* dwellers on land in this unhealthy region; but I cannot forbear reading for you a single sentence from Bathurst, on the mortality of one of our settlements. “In 1824, there were 346 European soldiers at Sierra Leone, of these 301 died in the rains; and in 1825, of 1,193 there died 621; and of 108 young men sent to the Isles de Los, to the north of the colony, 62 died.” This deadly character of the climate, moreover, affects the inferior classes of animals as well as man. In *Travels in Western Africa in 1845-6*, by John Duncan, it is stated that at Cape Coast Castle agriculture has made little progress, probably owing to the want of horses, *which cannot live more than a few weeks*; but the native breed of cattle is very handsome, though small, and is not subject to disease.

Now there is, probably, not a more salubrious climate in the whole world than Southern Africa. All writers on the recent Kaffir war agree that one of its most remarkable features was, the general good health of the troops, notwithstanding the great exertions and hardships to which they were exposed. And in a very interesting paper recently published by Colonel Napier, entitled *A Few Months in Southern Africa*, I find the following singular and interesting observations:—“The most sudden transitions from heat to cold, and *vice versa*, is a marked peculiarity of this changeful, though, strange to say, most salubrious climate, in which one may, generally speaking, and with equal impunity, sleep under the bush at the mercy of dew and rain, or

expose oneself during all hours of the day to the fiery heat of a vertical sun. On the present occasion, a most grilling hot day was succeeded by a night as bitterly cold ; and yet our bivouack produced no bad consequences."

Again, let us take the Island of Ascension, off the coast of Western Africa, and we find that at the time of Alexander's visit, as narrated in his *Western Africa*, all the Europeans and Africans were in the strongest health, and the former had florid complexions—a most unusual circumstance within seven degrees of the line. There were 60 Europeans and 40 Africans ; the former suffered no inconvenience in labouring in the sun for seven or eight hours all the year round, resting in the middle of the day.

In connexion with this subject, I cannot forbear reading for you the following remarks of Mr. Bynoe, on the climate of Northern Australia ; they are from the second volume of *Discoveries in Australia*, by J. L. Stokes :—" I find, on a reference to the medical journals, as well as to a meteorological table kept by me during a period of six years, on the coast of Australia, and under every variety of climate, that we had no diseases peculiar to that continent, and I am led to believe it a remarkably healthy country. On the north and north-west coasts, where you will find every bight and indentation of land fringed with mangroves, bordering mud-flats, and ledges formed by corallines in every stage of decomposition, with a high temperature, no fevers or dysenteries were engendered. Our ship's company were constantly exposed in boats to all the vicissitudes from wet to dry weather, sleeping in mangrove creeks for many months in succession, pestered by mosquitos during the hours of repose ; yet they still remained very healthy, and the only instance where the climate was at all prejudicial (if such a term can be applied), was in Victoria river, on the north coast, where the heat was at one period very great, and the unavoidable exposure caused two of the crew to be attacked with *coup de soleil*. Our casualties consisted of two deaths during our stay on the Australian coast ; one from old age, and the other a case of dysentery, contracted at Coepang."

But to return ; how, I say, can we account for such peculiarity in the climate of inter-tropical Africa ? That it does exist there can be no doubt, although the fact has not, as far as I am aware, been hitherto noticed. It must depend on some chemical or physical cause as yet undiscovered.

In the absence of any positive knowledge on this subject, are there any means by which the almost uniform fatality of the African fever may be rendered less destructive to mankind ? The only efficient method for so doing, I believe, must be sought for by an investigation into the effects of climate on the human race.

It is a remarkable and curious fact, that man is the only animal in whom the identity of species is preserved, while the varieties of his physical constitution are so great, that he is enabled, aided by the resources reason and experience suggest, to inhabit every latitude, and multiply in every climate ; but hitherto he has seemed unconscious of the value of the gift thus bestowed by the hand of Nature—and, while history records the sad effects of war in diminishing or destroying these varieties of the human species, we search its pages in vain for any attempt to preserve or increase them ; and yet there can be little doubt that a proper attention to their physical and mental qualities, would soon make known what region of the earth each is peculiarly fitted to inhabit, and what duties calculated to perform, in extending the empire of civilization. Let, then, the rulers of nations arrest the hand of destruction—let us have no longer to contemplate such catastrophes as the annihilation of

the aboriginal inhabitants of Van Dieman's Land, and let the voice of reason (not to invoke the holy name of religion) stay the structure of the funeral pile, on which may soon be placed the lifeless corpse of that noble member of the human family, the North American Indian.

It has been long known that negroes can withstand the action of deleterious exhalations that are fatal to Europeans. A striking instance of this kind must be fresh in the memories of all. In the expedition to the Niger, undertaken by command of the Government in 1841 and 1842, the mortality from fever was so great as entirely to prevent the execution of the intended design, and one of the iron steamers was saved only by the exertions of the surgeon, who acted as engineer, nearly all the other whites on board having perished. Three steamers were employed in this unfortunate enterprise, and their united crews consisted of 145 white men and 158 blacks; of the former, 130 were attacked with fever in the Niger, and 40 perished; while, of the blacks, only eleven caught fever, and in them the disease assumed a comparatively mild form, and none died. Of the blacks, 133 were entered on the coast of Africa, and consisted of native Africans, chiefly Kroomen, a *littoral* and seafaring tribe, whose intelligence, nautical skill, and fidelity will hereafter render them most available in the hands of some other civilized nations. Of the 133 natives, the greater number had never been on the waters of the Niger before, and yet not one of them sickened; the remaining 25 blacks were entered in England, and consisted of men—some natives of the West Indies, some of the United States of America, and one or two from Nova Scotia; of these, *eleven*, as I before mentioned, contracted fever, and none died, although every one of them had been in England, and absent for several years from tropical climates. This fact, Dr. McWilliam observes, proves “that the immunity from fever in warm countries, which is enjoyed by the dark races, is to a certain extent destroyed by a temporary residence in another climate.” This is quite true, but let us consider it in another point of view. Ten of the twenty-five blacks entered in England were West Indians, and had never visited the Niger, and yet they either escaped altogether, or had but slight fever; and two of the twenty-five were born in cold climates. It appears, therefore, that the black man has a physical conformation which fits him to resist better than the white the deleterious fever of tropical climates.

The same fact is still more strongly proved by the unfortunate results of the fever with which the crew of the *Eclair* steamer were attacked, when stationed on the coast of Africa in 1845. I need not enter into any particular account of these circumstances, so well known to all; it is sufficient for my present purpose to state that, as appears from the official documents, out of forty Kroomen on board, not a single individual was attacked with the fever which proved so fatal to nearly every European on board, until after the vessel arrived in England, when five slight fever cases occurred amongst them, but which are ascribed by Sir William Burnett to their being sent on board the *Worcester*, a much *colder* ship than their own.

Again, it is stated by Major Forbes, in his account of an eleven years' residence in Ceylon, that when the English were occupied in constructing the splendid roads which now traverse that island, some of the localities were found so destructive of human life, that even the native Cingalese labourers fell victims to disease in great numbers, and consequently the undertaking must have been abandoned, had it not been found that our Kaffir soldiers, who acted as pioneers, were comparatively exempt from the effects of the noxious exhalations, and, by their labours therefore, the work was perfected

in places where heat and moisture, acting on the accumulated vegetable deposit of this extensive wilderness of wood, gave rise to a miasma fatal to the other races employed by the government.

In a lecture which I delivered before the College of Physicians, in 1844, I entered at length into the history of the different races of mankind, as regards their diffusion over the face of the globe, and for further information on this subject I must refer you to that lecture, which was published in *The Dublin Literary Journal*, of April 1st, 1844. At present, when speaking of ague, I thought that the foregoing observations would prove interesting, as bearing on the malarious origin of disease. But I cannot conclude without expressing my conviction, one which I have arrived at from long consideration given to the subject, that the several original races of mankind were created by the Almighty power, with the view of their peculiar adaptation to the different climates of the globe. And I do not know any more interesting or more benevolent subject of inquiry which could engage your minds, than one into the physical circumstances by which any peculiar variety of the human race is constituted for inhabiting an individual climate.

LECTURE XXVI.

ON THE LAW WHICH REGULATES THE RELAPSE-PERIODS OF AGUE.

I SHALL devote this lecture to the consideration of an interesting subject to which I have lately paid much attention, namely, as to whether there is any law which regulates the relapse-periods of ague.

Having noted with much anxiety and accuracy the course of a quartan ague for twenty-seven months, I constructed a table for the purpose of obtaining a connected view of the number and dates of the fits. This table had been made for some time, before I discovered that it contained *data* which authorize us in concluding that the law regulating the periodicity of agues applies not only to the succession of paroxysms, but is extended to the free intervals between them—in other words, that the same law of periodicity which governs the disease while it occasions fits, continues likewise to preside over its latent movements during the interval when no fit occurs; and thus the true periodic rate is carried on, though, as in a clock from which the striking weight has been removed, the usual signal does not mark the termination of each certain definite portion of time.

This law, now for the first time brought to light, exhibits a new example of the tenacity with which periodicity clings to a disease, when once firmly impressed on it, and recalls to mind a very similar phenomenon observed with respect to the catamenia, which, having been suppressed for many months, not unfrequently reappear on the very day on which the monthly period would have occurred, had no such suppression taken place.

The case I am about to detail possesses likewise several features of practical interest, and serves to show that a very obstinate species of ague, accompanied by various complications, may be perfectly cured by the use of quina alone; and that very large quantities of that powerful medicine may, under such circumstances, be taken not only with impunity but with advantage. A boy of good constitution and eleven years of age had been at a boarding school in Kent, during the spring and summer of 1842, and remained in perfect health all that time. In autumn he was very imprudently allowed to bathe daily in a pond of stagnant water, and he frequently continued in the water for more than an hour. In the November following, feverish symptoms exhibited themselves, and he was several times an inmate of the school infirmary: his disease was considered to be a frequent return of feverish attacks from cold and indigestion; and accordingly he was treated by confinement and low diet, with mercurial and saline purgatives. Notwithstanding these remedies, the disease frequently recurred, nor was its true nature even suspected by the medical attendant. He arrived in Dublin on the evening of the 16th of December, 1842, and the moment I saw him I concluded, from the peculiar tinge of his complexion, that he was affected with ague. He had a slight cough, but in other respects was tolerably well, although fatigued by his journey: he slept well that night. On the 17th of December he made a good

breakfast and dinner, but after dinner he sickened : he slept well during the night, and awoke at eight o'clock on the morning of the 18th. He was hot and feverish all day until about eight o'clock in the evening : the paroxysm of ague thus lasting twenty-four hours. He got at four, p.m. five grains of sulphate of quina. 19th. Slept all last night, free from fever ; sulphate of quina repeated. 20th. No fever : cough much better ; third dose of quina. 21st. He slept well during the night ; he awoke free from the fever, which, however, returned at eleven o'clock, a.m. ; the fit lasted eight hours : the quina was repeated. 22nd. The dose of quina was increased to seven and a-half grains, and continued for some days. There was no return of the fever until January the 8th, on which day he had a slight fit. We here remark for the first time, that the paroxysm occurred on the very day on which it would have occurred had it been going on regularly from the 21st of December ; for then the days should have been the 24th, 27th, 30th, and 2nd, 5th, and 8th of January ; in other words, the periodic time of the disease, while it exhibited no evident paroxysm, was the same as when it did. The quina was resumed on the 8th of January, and seven and a-half grains of it given daily for four days. The disease now disappeared for a time, but on January 21st he had a slight fit ; and it is to be remarked that this does not correspond with the day upon which it should have reappeared, viz. the 20th, had its latent periodic time remained the same, as may be seen in the table. To proceed with this particular part of our subject :—paroxysms occurred on the 21st, 24th, and 27th of January, and then ceased, in consequence of the exhibition of quina, until the 10th of March. Now reference to the table will show that had the disease observed the quartan period, from the 27th of January, it would have reappeared on the 10th of March. Fits occurred on the 13th and 16th of March, and then ceased, under the influence of medicine, until the 30th of April, the very day which corresponds with the quartan period, had it gone on regularly from the 16th of March, as may be seen by reference to the table. The fits occurred again on the 3rd and 6th of May, and were then arrested by the use of quina, again to reappear on the 24th of May, the very day the fit was due : but of this more hereafter. We have seen that the fit of the 21st of January was slight, and that on the 24th was severe, commencing at three, p.m. The headache was very bad : the fever continued, more or less, to the 25th, and his appetite was not restored until the 26th. On the 27th, about three, p.m. another fit, much less severe : scarcely any headache : less heat of skin, nausea, and restlessness : passed a good night, and was perfectly well at breakfast on the 28th.

From the 18th of December to the 2nd of January, he took seventy-five grains of quina ; from the 8th to the 12th, thirty grains ; and from the 21st to the 30th, sixty grains ; total amount, 165 grains. The fit did not return on the 30th of January, and he seemed in every respect perfectly well on that day. Medicine was now discontinued. He had not the slightest indication of disease until Friday, March the 10th. The fit was then, however, so slight that I was doubtful concerning the actual occurrence of a relapse, and therefore did not resume the quina, until a very severe aguish paroxysm on the 13th of March removed all doubt upon the subject. It is particularly worthy of notice that the boy exhibited not the slightest feeling or precursory symptom of indisposition, and had a very healthy colour up to the very beginning of the paroxysm on the 10th. This is not usual, nor did it often happen in the case before us ; for, as the disease became more deeply rooted, the return of the fit was invariably preceded, for a few days, by an unhealthy aspect and

a pale colour. Still the sudden manner in which the ague fit sometimes commenced is very remarkable, for I have seen this patient sit down to a meal with a good appetite, and he had scarcely half-finished when all at once he felt indisposed, every trace of appetite vanished, and the aguish rigor set in. I particularly remarked, too, that there was no derangement whatsoever perceptible in his sleep, urine, alvine evacuations, tongue, or the functions of any other organ, during the twenty-four hours that preceded the relapse of the 10th of March. At later stages of the complaint, this freedom from functional disturbance before the actual fit was not so clear, but, on the contrary, the boy usually felt a little unwell for a day or two before the fit commenced.

These facts show us that ague is at first purely periodic, the health being totally unaffected during the interval between the attacks; but as the disease becomes rooted, as I have said before, in the constitution, the intervals are rendered less purely healthy. On the 14th of March he again began the quina, in daily doses of ten grains. The fit of the 13th had been very severe; that of the 15th was milder, and, as I already stated, the ague then ceased, not to reappear until April the 30th. From the 14th of March until the 17th he took ten grains of quina daily, and then continued the medicine in gradually increasing doses, until ninety grains had on the whole been taken during this month. The paroxysm of the 30th of April was slight but well marked; that of the 3rd of May was sudden, and attended from its commencement with raving and hallucinations, which were very alarming, and lasted for two hours, until the hot fit was established. This fit was not perfectly solved sooner than sixteen hours, and created so much uneasiness in my mind that I resolved, contrary to my previously formed resolution, to give him quina in order to prevent another attack, or at all events diminish its violence, fearing that the disease, if unchecked, might pass into its worst form, the apoplectic or *febris intermittens perniciosa*. Accordingly, on the 4th, 5th, and 6th of May he took forty grains of quina, notwithstanding which he had a fit, as I before mentioned, but slight, and without any cerebral symptoms, on the 6th. The following day he went, by Dr. Stokes' advice, to reside in a cottage most favourably situated over the sea, on the high cliffs of the south side of the hill of Howth; and on the 9th he took, at 2, p.m., a draught containing ten drops of laudanum and twenty of sulphuric ether. He spent his time chiefly in the open air, and his appearance became much more healthy. He remained quite free from the disease, was active, strong, and cheerful, with an excellent appetite and good spirits, and returned to Dublin on the 23rd day of May, having passed seventeen days free from a paroxysm.

On the 24th, at 4, p.m., he had a slight paroxysm, and on the 27th, at the same hour, another, which was well marked but not severe, for he slept well the whole night, and, though he had but little appetite next morning, he was in every other respect quite well. We were led, probably erroneously, to attribute the comparative mildness of this fit to a draught containing camphor mixed with sweet spirits of nitre and seven drops of laudanum, taken at 1, p.m., and repeated at 3, p.m., the latter followed by a cup of hot coffee. On the 28th of May he again went to Howth, and was directed to take an opiate draught on the 30th as before, and to go to bed at three o'clock, and by means of hot tea to try to prevent the fit. Notwithstanding these measures the fit came on at the usual hour, on the 30th of May, and, though not of long continuance, was severe, and its commencement was accompanied by

spectral illusions. Dr. Stokes and I now determined to lay aside medicine and try what the pure air of Howth, aided by fine weather and constant outdoor amusement, would do. The event did not justify our expectations, for he had fits on the 2nd, 5th, 8th, 11th, and 16th of June, and these fits came on with great regularity about 3, p.m., some of them slight and interrupting his amusement only for an hour or two, but others severe, and, though not lasting more than six or eight hours, yet attended with headache, nausea, vomiting, and purging, which affections seemed to relieve the head. As he had eight successive fits and the disease evinced no inclination to subside spontaneously, we resolved again to try the sulphate of quina, and on the 15th gave him five grains twice, on the 16th three times, and on the 17th twice before 10 o'clock, in order to interrupt the fit; on the 18th twice, on the 19th three times, and on the 20th twice; so that he took seventy grains during these six days. The result of this treatment was a milder fit on the 17th, and none on the 20th. Thus the plan of giving no quina had been tried from the 6th of May to the 15th of June, and it is observable that after this uninterrupted series of nine fits, the seventy grains of quina which were required to stop the fits produced only an interval of eleven free days, from the day the medicine was last exhibited, viz. the 20th of June; for on the 2nd of July he had a slight but well-marked shadow of a fit, consisting of paleness, collapse, and some headache, short in continuance, and followed by a scarcely perceptible hot fit. We have already seen that where only two fits had been allowed to occur, forty grains produced a free interval of seventeen, and the advantage therefore of immediately giving quina, and as soon as possible arresting the course of the paroxysm, was so obvious, that on the evening of the 2nd of July I gave him five grains of quina, and twenty grains more were given on the 3rd, 4th, and 5th. Now the good effects of at once arresting the disease in its progress were made very evident, for these twenty-five grains obtained a clear interval, without fever and without medicine, of fifteen days.

On the evening of the 20th he was out boating at Kingstown, and came home chilled, as he said, by the breeze, but as he recovered after tea, and slept very well during the night, we flattered ourselves that it was merely a chill and not the shadow of an ague fit. But on the 23rd he had a decided though not severe fit. He now recommenced quina—five grains on the 23rd, five on the 24th, ten on the 25th, and ten on the 26th, on which day he had a well-marked fit, but not of long continuance, and its commencement was deferred until half-past seven in the evening. On the 27th he took five grains, on the 28th ten grains, and on the 29th ten grains—on that day he had no fit; so that, between the 23rd and 29th, both days inclusive, he had taken fifty-five grains, which quantity produced a free interval of eleven days. This result forms a striking contrast with the former, and proves that twenty-five grains employed immediately on the appearance of the first fit produce a longer interval than fifty-five grains employed after the second fit had been allowed to come on. I now determined to act on the experience thus gained, and give the medicine the moment the disease reappeared. This it did on the 10th of August, when he had a decided fit, which commenced at half-past five, and seemed to have gone off before nine o'clock, for he slept perfectly well, and was free from fever during the night.

In this case the first paroxysm of some of the series was of long continuance, and embraced portions of two successive days, so as to make it difficult to determine the exact date of the paroxysm. Thus, in December, 1842, the

ague fit commenced on the 17th, in the afternoon, and lasted for twenty-four hours, that is, until seven o'clock on the evening of the 18th. If we date it from the commencement of this paroxysm, that is, the 17th, the next fit should have been on the 20th, whereas it actually occurred on the 21st December; here, then, the date must be taken from the day on which the fit terminated. An example of the contrary nature occurred on the 9th of March, 1844, after a free interval of nearly five months, when a paroxysm of eighteen hours' duration partly occupied the 9th and partly the 10th of March. In this instance the two fits next in order were prevented, but as one occurred on the 18th of March, it is clear that the date must be taken from the day on which the fit *began*, not from that on which it *ended*. These two facts, apparently contradictory, taken in conjunction with others of a similar nature observed in this case, prove that when ague commences or reappears after a long cessation, it is not always easy at first to determine accurately the dates of the fits.

He took five grains of quina on the 10th of August, ten on the 11th, ten on the 12th, and five on the 13th, on which day he had no fit. It was now remembered that on the 8th and 9th of August some precursory symptoms had appeared, denoting the approach of the fit, for on those days he complained of considerable vertigo in the morning after breakfast, particularly on going to stool. The giddiness was very bad on the morning of the 11th, but was much diminished on the 12th. Notwithstanding this giddiness he continued the quina, and the vertigo, with its accompanying paleness and slight nausea, disappeared. It was now proved that the occurrence of the morning vertigo might serve to give us one or two days warning of the future fit, and accordingly it was determined to resume the medicine the moment he complained of this vertigo, which he did very much when at stool after breakfast on the 21st of August. He took five grains at mid-day, and five before breakfast on the 22nd. The giddiness was much less. On the 23rd he took five grains in the morning, and had no vertigo after breakfast, and on the 24th five grains more were taken, and then, as he appeared quite well, the medicine was discontinued; but was again resumed on the 31st of August, as he complained of some vertigo, and he took five grains daily until the 8th of September, when he was quite free from ague.

At this period of his treatment I was not aware of the law which governs the return of the ague fit. On looking at the table it was quite evident that the giddiness he complained of on the 21st of August was the precursor of the fit that would have occurred on the 22nd, had not the quina been used; and again, that the giddiness which recurred on the 31st of August was the first shadow of the fit due on that day; and which, no doubt, would have made its appearance in full development on the 3rd of September, had not medicine been used. A knowledge of this law will, therefore, prove of the greatest importance in enabling us to guard against the return of the disease; for, for several weeks after the series of fits has ceased, we can point out to the patient on what days they are liable to reappear; and, consequently, he can upon those days more effectually guard against the occasionally exciting causes of the disease, such as cold, fatigue, &c., and can also more accurately prognosticate his distance from the paroxysm by the greater or lesser degree of health which he feels on the periodic days. As long as they continue as free as the intervening days, the relapse is comparatively distant. But to return to our history. The disease appeared now much less violent than before, for during the two preceding months the fits had been comparatively

slight and of short duration, and much more under the control of medicine. On the 8th of September he went to England. By way of precaution I ordered him to continue the quina in the following manner: He was to take five grains for four consecutive days, and then to omit it altogether for the next six days, at the expiration of which the four-day course was to be resumed. Thus twenty grains were given every ten days. This plan of treatment seemed to be attended with much success. For more than two months he had no attack. He gained flesh and improved in looks and spirits, but, just as we anticipated the realization of our best hopes, the disease reappeared on the evening of October the 15th, so that from the date of the last attack on the 10th of August, sixty-four days had elapsed without an attack, and by reference to the table it appears that the 15th of October was one of the ague days, or rather of the periodic days: so that the disease suppressed during more than nine weeks had yet, for the whole of that time, observed its latent period in the system, and reappeared with wonderful regularity on the ague day. As I before stated, he had a paroxysm on the 15th of October: it was slight, and occurred in the evening: and again tolerably severe ones occurred on the 18th and 21st of October at early periods of the day: but on the 24th the fit was postponed to seven in the evening, and was only a shadow. Between the 16th of October and the 28th he took fifty grains of quina. From the benefit derived from the four-day course with the sixty-day interval, the course of quina was again commenced, and was persevered in for nearly five months, during which he enjoyed excellent health and was free from every symptom of disease, having taken in this period more than 200 grains. However, on the 9th of March, his old enemy once more attacked him. The fit was very severe, occupying part of the 9th and part of the 10th of March. The latter was the day on which it was due, had it returned according to the usual period. This can scarcely be considered an exception to the usual rule, for when the ague returns after a long interval and the fit is severe, occupying the latter half of one day and the beginning of another, we have already seen that the sequel alone will determine from which of the days we are to date: allowing, however, this to be an exception to the general rule, our period becomes once more dislocated, and we set out anew with a periodic time dated from the 9th of March. This periodic time holds true, indicating after an absence of two fits, the fit of the 18th of March, and the next fit, which occurred on the 11th of April, the latter interval consisting of twenty-three days between the two fits. There was a fit on the 14th of April, another on the 17th, and another on the 20th; and none then occurred until the 2nd of July. According to the new periodic time it ought to have occurred on the 1st of July. In this free interval of seventy-two days the periodic time failed to indicate by one day, or rather by half a day, the reaccession of the disease. We must therefore again take a fresh day of departure from the 2nd of July. Another fit occurred on the 5th of July. No fit came on till the 25th of August, that is, there were fifty clear days, free from the fit, between these two paroxysms; and the latent periodic time came out true. No fit occurred until the 2nd of November, so that there was now a free interval of sixty-eight days; and the latent periodic time was true to a day. Taking date from the 2nd of November, we have next an interval of forty-one clear days, bringing us to the last fit on the 14th of December, 1844, which coincides with the periodic time. The following is a table of the free intervals which

occurred between successive series of fits, showing the respective duration of the intervals which observed the period, and those which did not :—

TABLE A.—FREE INTERVALS BETWEEN SUCCESSIVE SERIES OF FITS.

	INTERVAL.	PERIODIC.	NOT PERIODIC.
		Days Free.	Days Free.
1842	1st	17	
	2nd		12
	3rd	41	
	4th	44	
1843	5th	17	
	6th	14	
	7th	17	
	8th	14	
	9th	65	
	10th		136
	11th	8	
	12th	23	
1844	13th		72
	14th	50	
	15th	68	
	16th	41	

It is worth remarking that all the numbers indicating the free intervals, in which the latent period was observed, consist of multiples of three *plus* two—the reason is obvious.

By this it appears that, in thirteen intervals, the latent periodic time was preserved, so as to indicate truly the day on which the disease reappeared; and that in the remaining three the indication was inaccurate by a half a day or more. It is to be noted that two of the failures occurred where the intervals had been very great. We may, therefore, conclude that the law is true of intervals varying from ten to sixty or seventy days; in much longer intervals it is less certain. During the year 1843 twenty-seven fits occurred; in 1844 but eleven, most of which were in the months of March and April, and some of the latter were among the most violent he experienced. The disease, therefore, did not wear itself out, but was cured. He has had no fit during the last year, and has remained free from the disease since the 14th of December, 1844, to the present date.

With respect to the manner in which quina was used, the following observations may be made. At first I gave it in the usual manner, until the particular series of fits ceased; and then persisted in its use for ten days or a fortnight, gradually decreasing the quantity taken. This is the method generally recommended by authors, and it is founded on the notion that it is necessary, where the medicine is given in large doses, not to omit its use abruptly, lest the system should feel the loss of this powerful tonic. My experience in this and other cases leads me to doubt the accuracy of the reasoning upon which this treatment is founded, and I am convinced that, in following this rule, we defeat our own object, by accustoming the constitution to the medicinal effects of the quina at a time when the ague fit is absent. The quina is the proper antagonist of the fit, and while the fits require this medicine, it is borne well by the constitution. On the contrary, when the

fits are absent, its curative effects appear to be diminished, and the constitution becomes so accustomed to it that, when the disease again requires it, the medicine no longer exerts its anti-aguish influence. We have an analogous example in the case of mercury, of which moderate quantities, judiciously exhibited, are sufficient to cure the venereal disease, provided the mercury is given when venereal symptoms are present, and only in the quantity necessary to control these symptoms. If it be given by way of prevention, when these symptoms are not present, or in too great quantity when they are, the system in either case becomes saturated with the mineral, but is not protected from the further ravages of the venereal disease. The second mode of treatment which I adopted was calculated to avoid the inconvenience already pointed out. This method consisted of giving the quina for four successive days, and intermitting it for the six following days, thus embracing the interval comprehended in three fits. By these means it was hoped to keep the system sufficiently under the curative influence of quina while we avoided rendering the constitution too familiar with the medicine; the six-day interval preventing it from becoming saturated by the quina. This method of treatment seems to have been eminently successful, and under its influence the disease abated in violence, the frequency of the attacks decreased, and the long interval of 136 days was at last obtained. Finding, however, that, though it had broken the violence of the disease it had not extinguished it, I tried another on the third plan, which was to give no quina until a well-marked fit or shadow of a fit occurred, and then at once to use the medicine in large doses, so as to stop the fits as soon as possible. The moment this object was accomplished the medicine was omitted, and was not again given until the paroxysms recurred, when they were similarly treated. This on the whole appears the best method, as it stops the paroxysms speedily, and keeps the medicine in reserve until they reappear. The following table gives a general view of the quantity of quina which this patient took. The quina was prepared by Mr. Donovan, and was of the purest kind.

On the whole, I conceive the readiest method of giving sulphate of quina to be, to add a dose of the powder to about half an ounce of water at the time it is to be taken; it can be readily mixed by stirring with a spoon; and by this means it may be swallowed without the inconvenience which attends the dose when acid is used for the solution of the quina, the action of which might prove injurious to the teeth.

During the summer of 1843, the young gentleman whose case has been related had a very delicate and unhealthy appearance, and while he was under the kind superintendence of Dr. Stokes at Howth, evident tumefaction of the spleen had commenced. He is now robust and strong, and has regained his original healthy complexion.

TABLE B.

SULPHATE OF QUINA TAKEN DURING THE YEARS 1842, 1843, AND 1844.

1842.					GRAINS.
Dec.	18,	Two draughts, each containing	gr. v.	=	x.
,,	20,	do. do. do.	gr. v.	=	x.
,,	22,	do. do. do.	gr. viiss.	=	xv.
,,	23,	do. do. do.	gr. viiss.	=	xv.
,,	26,	do. do. do.	gr. viiss.	=	xv.

1843.					GRAINS.
Jan.	1,	Two draughts, each containing	gr. v.	=	x.
"	8,	do. do. do.	gr. viiss.	=	xv.
"	11,	do. do. do.	gr. viiss.	=	xv.
"	21,	Four do. do.	gr. viiss.	=	xxx.
"	26,	Two do. do.	gr. viiss.	=	xv.
"	29,	Four do. do.	gr. v.	=	xx.
"	31,	Six do. do.	gr. v.	=	xxx.
Feb.	5,	do. do. do.	gr. v.	=	xxx.
"	11,	do. do. do.	gr. iv.	=	xxiv.
"	19,	do. do. do.	gr. iii.	=	xviii.
March	13,	Six do. do.	gr. v.	=	xxx.
"	16,	do. do. do.	gr. v.	=	xxx.
"	18,	Four do. do.	gr. v.	=	xx.
"	22,	Six do. do.	gr. v.	=	xxx.
"	28,	do. do. do.	gr. v.	=	xxx.
April	3,	do. do. do.	gr. iv.	=	xxiv.
"	8,	do. do. do.	gr. iv.	=	xxiv.
"	15,	do. do. do.	gr. iii.	=	xviii.
"	21,	do. do. do.	gr. iii.	=	xviii.
May	4,	do. do. do.	gr. v.	=	xxx.
"	6,	do. do. do.	gr. v.	=	xxx.
June	15,	Fifteen do. do.	gr. v.	=	lxxv.
July	2,	Two do. do.	gr. v.	=	x.
"	3,	Ten do. do.	gr. v.	=	l.
"	23,	Six do. do.	gr. x.	=	lx.
Aug.	10,	Seven do. do.	gr. v.	=	xxxv.
"	21,	Four do. do.	gr. v.	=	xx.
"	31,	Three do. do.	gr. v.	=	xv.
Sept.	5,	Four do. do.	gr. v.	=	xx.
"	8,	Eleven do. do.	gr. v.	=	lv.
Oct.	5,	Four papers of quina, in each	gr. v.	=	xx.
"	17,	do. do. do.	gr. v.	=	xx.
"	18,	Twelve do. do.	gr. v.	=	lx.
"	25,	Six do. do.	gr. vi.	=	xxxvi.
Nov.	2,	do. do. do.	gr. v.	=	xxx.
Dec.	1,	Twelve do. do.	gr. v.	=	lx.
"	26,	do. do. do.	gr. v.	=	lx.
1844.					
Feb.	5,	do. do. do.	gr. v.	=	lx.
"	28,	do. do. do.	gr. v.	=	lx.
March	13,	do. do. do.	gr. v.	=	lx.
April	7,	do. do. do.	gr. v.	=	lx.
"	15,	Six do. do.	gr. v.	=	xxx.
"	25,	Twelve do. do.	gr. v.	=	lx.
Aug.	18,	do. do. do.	gr. v.	=	lx.
Sept.	4,	do. do. do.	gr. v.	=	lx.
Nov.	7,	do. do. do.	gr. v.	=	lx.

Amounting in the whole to grs. 1,680, equivalent to *three troy ounces and a half*; of which he took, in the year 1842, grs. 65; in the year 1843, grs. 1,105; in the year 1844, grs. 510.

The two tables marked C. represent the fits and intervals during the years 1843 and 1844. D. F., day on which fit occurred. P. T., the periodic time carried on through the free intervals. W. D. marks where the latter falls on the wrong day, *i. e.*, a day on which no fit occurred : a new series here commences in each of the three failures, as I before explained.

TABLE C.—1843.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1			P. T.					P. T.				
2	P. T.	P. T.				D. F.	D. F.				P. T.	P. T.
3				P. T.	D. F.				P. T.	P. T.		
4			P. T.					P. T.				
5	P. T.	P. T.				D. F.	P. T.				P. T.	P. T.
6				P. T.	D. F.				P. T.	P. T.		
7			P. T.					P. T.				
8	D. F.	P. T.				D. F.	P. T.				P. T.	P. T.
9				P. T.	P. T.				P. T.	P. T.		
10			D. F.					D. F.				
11	P. T.	P. T.				D. F.	P. T.				P. T.	P. T.
12				P. T.	P. T.				P. T.	P. T.		
13			D. F.					P. T.				
14	P. T.	P. T.				D. F.	P. T.				P. T.	P. T.
15				P. T.	P. T.				P. T.	D. F.		
16			D. F.					P. T.				
17	P. T.	P. T.				D. F.	P. T.				P. T.	P. T.
18				P. T.	P. T.				P. T.	D. F.		
19			P. T.					P. T.				
20	W. D.	P. T.				P. T.	D. F.				P. T.	P. T.
21	D. F.			P. T.	P. T.				P. T.	D. F.		
22			P. T.					P. T.				
23		P. T.				P. T.	D. F.				P. T.	P. T.
24	D. F.			P. T.	P. T.				P. T.	D. F.		
25			P. T.					P. T.				
26		P. T.				P. T.	D. F.				P. T.	P. T.
27	D. F.			P. T.	D. F.				P. T.	P. T.		
28			P. T.					P. T.				
29						P. T.	P. T.				P. T.	P. T.
30	P. T.			D. F.	D. F.				P. T.	P. T.		
31			P. T.					P. T.				

TABLE C.—1844.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	P. T.		P. T.			P. T.	W. D.	P. T.				
2				P. T.	P. T.		D. F.				D. F.	P. T.
3		P. T.							P. T.	P. T.		
4	P. T.		P. T.			P. T.		P. T.				
5				P. T.	P. T.		D. F.				P. T.	P. T.
6		P. T.							P. T.	P. T.		
7	P. T.		P. T.			P. T.		P. T.				
8				P. T.	P. T.		P. T.				P. T.	P. T.
9		P. T.	D. F.						P. T.	P. T.		
10	P. T.		W. D.			P. T.		P. T.				
11				D. F.	P. T.		P. T.				P. T.	P. T.
12		P. T.	P. T.						P. T.	P. T.		
13	P. T.					P. T.		P. T.				
14				D. F.	P. T.		P. T.				P. T.	D. F.
15		P. T.	P. T.						P. T.	P. T.		
16	P. T.					P. T.		P. T.				
17				D. F.	P. T.		P. T.				P. T.	
18		P. T.	D. F.						P. T.	P. T.		
19	P. T.					P. T.		P. T.				
20				D. F.	P. T.		P. T.				P. T.	
21		P. T.	P. T.						P. T.	P. T.		
22	P. T.					P. T.		P. T.				
23				P. T.	P. T.		P. T.				P. T.	
24		P. T.	P. T.						P. T.	P. T.		
25	P. T.					P. T.		D. F.				
26				P. T.	P. T.		P. T.				P. T.	
27		P. T.	P. T.						P. T.	P. T.		
28	P. T.					P. T.		P. T.				
29				P. T.	P. T.		P. T.				P. T.	
30			P. T.						P. T.	P. T.		
31	P. T.							P. T.				

LECTURE XXVII.

CHOLERA—ITS ORIGIN AND PROGRESS.

WHILE the art of navigation was in its infancy, and communication by land between distant countries unfrequent and insecure, the different races and families of mankind who dwell far asunder on the earth's surface were necessarily unacquainted with the appearance of new, or the existence of remarkable diseases amongst each other, and, consequently, that department of medical science which may with propriety be termed the Geography of Diseases remained uncultivated. Now, however, we approach to a new era, when the means of intercourse between the most distant nations have been so facilitated by the aid of an improved system of navigation, a commerce almost universal, and the daily-increasing efficacy of steam power, that we may indulge in the rational hope of seeing the sciences studied after a new method, which will embrace within the range of observation not merely the phenomena occurring in a single district or country, but those which take place over the whole surface of the globe.

Already have the enlightened efforts of our own University, and the genius of one of its professors, prompted the rulers of many kingdoms to join in an alliance destined to establish magnetic observatories in distant regions, so as to make the globe of the earth itself a subject of extended experiment ; the philosophers of the new world have combined with those of the old to examine simultaneously meteorological phenomena, and already have the records preserved by observers at sea and land, revealed the hitherto mysterious course of storms, and enabled us to map out the extent and direction of the shocks of earthquakes. When we investigate the physical changes which occur in our planet, we are encouraged to repeat and multiply observations, in the hope of discovering general laws whose application will enable us to explain the past and predict the future. But the surface of the earth abounds with beings in whom the creative powers of life display an order of phenomena more complicated and refined than anything existing in unorganized matter. But for this very reason, and on account of this superiority conferred on organized matter through the agency of vitality, each being thus animated is governed by laws which seem incapable of extension even to other living creatures of the same species ; and consequently we were led to expect an individuality, an insulation among animals, which will prevent them from exhibiting changes occurring simultaneously among great numbers, and capable of being traced to the operation of general laws.

A closer examination, however, proves that animals and plants are subject to the operation of physical agencies which act upon numbers of individuals at the same time, and thus give rise to great varieties of diseases. Such diseases should be made a special object of study ; many of them are, as it were, fixed, stationary, and confined to certain countries and districts. Thus,

the goitre, the *tumidum sub Alpinis guttur*, has from the earliest times been endemic in the valley of the Rhone and other parts of Switzerland ; modern travellers have observed it in certain parts of South America, and in Kemaon, a subalpine department of Hindostan. Agues, typhus, yellow fever, elephantiasis, beri-beri, Guinea-worm, yaws, Egyptian ophthalmia, are chiefly confined to the inhabitants of certain districts, and, with a host of other complaints, would afford ample materials for the geography of fixed diseases.

On the other hand, there are affections of men and animals which travel from nation to nation, and tribe to tribe ; sometimes these moving epidemics progress with such rapidity, that they speedily migrate over the whole earth ; at other times they creep along with a slow and stealthy step, but their journey is continued year after year, until they have travelled round the world. The Asiatic cholera affords an example of the latter class, having been twenty years in compassing the earth ; while influenza, an example of the former, often traverses the same space in a few months. Thus, the epidemic influenza of 1830-'32 existed in Australia, and was afterwards noticed in the northern hemisphere of Moscow, whence in eight months it extended to St. Petersburg, Warsaw, Frankfort, Paris, London ; three months subsequently it appeared in Italy, and shortly afterwards in Gibraltar. Now it is deserving of attention that this influenza travelled from Moscow to London in eight months, and to the United States of America in seven months more, and, allowing something for the inaccuracy of dates, these data give its rate across the Atlantic only a little speedier than across the Continent.

This forms, as we shall hereafter see, a striking contrast with the progress of cholera from Britain to Quebec, as compared with its march from Moscow to London, and is a fact of considerable weight in arguing whether cholera, like influenza, is propagated by atmospheric influences.

The influenza of 1833 travelled much more rapidly than that of 1832, for, originating in the north-east, there was but a few days' interval between its appearance in Moscow, Odessa, Alexandria, and Paris !

The influenza of 1847, however, appears to have travelled with still greater rapidity. From returns received at the office of the Director General of the Navy, Sir William Burnett, it appears to have prevailed in January and February on the coast of Portugal and south coast of Spain ; in January, February, and March, in Newfoundland and New Zealand ; in February and March at Valparaiso ; in April, on the coast of Syria ; July, August, and September, west coast of Africa south of the equator, and in August in Hong Kong !

Influenzas differ from each other not merely as to their rate of travelling, but as to the extent of the earth's surface which they affect. Some, as that of 1782, spread from China all over the inhabited parts of Asia, Europe, and America ; while others, as, for instance, the great influenza of 1837, did not reach the new world at all, although it passed the equinoctial line, and was severely felt at the Cape of Good Hope and Australia. These facts are alone sufficient to stimulate our curiosity, and ought to direct the attention of philosophers as well as physicians to the study of endemic and epidemic diseases ; nor will their study be destitute of practical benefit, for were the rulers of civilized nations to bring into active operation a number of institutions, which, discharging the functions of *medical observatories*, should observe and record the appearance and symptoms of epidemics, many curious facts relating to their origin and progress would be soon brought to light, and we

might then perhaps be enabled to arrive at a knowledge of some general laws respecting their motions. Thus, we could ascertain whether, as has been asserted, influenza always progresses from east to west ; never from west to east ; whether, originating on one side of the equator, it often passes to the other.

As the means of communication are now-a-days so rapid, it is quite possible to learn the character and the best mode of treating an epidemic disease long before its arrival amongst ourselves ; we knew, for instance, the symptoms and best method of treating the influenza of 1837, several weeks before we experienced its shock, and we had for many years been familiar with the symptoms of cholera before we actually witnessed its baneful effects. I have still by me a manuscript copy of a lecture I gave at the Meath Hospital in 1826 ; in that lecture I actually described from eastern authors, the symptoms of spasmodic cholera, and prepared the class for its future arrival in Great Britain, a prediction not my own, but derived from that illustrious philosopher and truly excellent man, Dr. Brinkley, then President of the Royal Irish Academy.

The origin and march of the spasmodic cholera will form the subject of the remarks which I mean to lay before you to-day. In India, or more properly speaking in Hindostan, the spasmodic cholera is not a new disease ; partial epidemics of it have occurred at different times since that empire has been familiarly known to the English. These epidemics, however, being almost exclusively confined to the natives, comparatively circumscribed in extent, and limited in duration, did not attract much attention on the part of European writers.

"In 1762 it prevailed very extensively in Upper Hindostan, destroying, according to Le Begue de Presle, thirty thousand natives and eight hundred Europeans. Dr. Paisley, in a letter from Madras in 1774, states that it was often epidemic, especially among the blacks. M. Sonnerat, in the account of his travels in India, between the years 1774 and 1781, mentions that cholera prevailed on the Coromandel coast, and at one period more particularly assumed an epidemic and malignant character. Curtis, in his work on the diseases of India, and Girdleston, in his essay on the spasmodic affections of that country, speaks of an unusual prevalence of the disease during 1781 and 1782. It prevailed in the northern Cicars in the early part of 1781, and in the latter end of March it affected at Gangam a division of Bengal troops, consisting of five thousand men, who were proceeding under the command of Colonel Pears of the artillery to join Sir Eyre Coote's army on the coast. Men previously in perfect health dropped down by dozens, and those even less severely affected were generally dead or past recovery within less than an hour. Above five hundred were admitted into the hospital in one day, and in three days more than half the army were affected.

"In April, 1783, it broke out at Hurdwar, on the Ganges, a spot held peculiarly sacred by the Hindoos, among a crowd of between one and two millions of persons assembled for the purpose of ablution in the holy stream. It is the custom of the pilgrims to repair to the bed of the river, where they pass the night, with little, if any shelter. Very soon after the commencement of the ceremonies, the cholera attacked the pilgrims, and in less than eight days is supposed to have cut off twenty thousand of them. The disease was, however, on this occasion so confined in its influence, as not to reach the village of Jawalpoore, only seven miles distant."*

* *American Cholera Gazette*, p. 3.

In Europe no such disease as spasmodic cholera had been known ; this assertion, though opposed to some authorities, may be considered as well founded, and indeed I have no doubt of its accuracy. With us spasmodic cholera is an imported disease ; in Hindostan a resident epidemic. What causes combined to convert a malady habitually confined to the Indian peninsula, into a disease which overshadowed the earth, sparing no nation nor language, it would be useless to inquire ; the subject is buried in profound obscurity : in the mean time, let us hope that it will not prove a permanent addition to the nosology of every country, and that it will soon return within its former limits. It was in the spring of 1817 that the cholera of India assumed a new and more powerful character ; it was then it became endowed with properties that rendered its extension steadily progressive over the earth, in spite of all the obstacles interposed by diversity of soil or climate. The disease first assumed the migratory and epidemic form in districts bordering on the Ganges and some of its tributary rivers, at a distance varying from 80 to 150 miles from Calcutta. This took place in the spring and summer, but the date of its commencement is usually referred to the period of its outbreak at Jessore, on the 19th of August, 1817, where the epidemic was first immediately observed and described by Dr. Tyler, who erroneously attributed it to the use of bad rice. Jessore is situated in Gangetic Delta, about 100 miles north east of Calcutta. The cholera was now observed in general to follow the course of the rivers, and soon arrived at Calcutta, where it commenced its ravages in September, 1817, and continued to rage during nearly the whole of 1818.

“ By the latter end of September the disease was prevailing throughout the whole province of Bengal, from the most easterly limits of Purnea, Dinajepore and Silhet, to the extreme borders of Balasore and Cuttack ; and from the mouth of the Ganges nearly to the confluence of that river with the Jumna, a space of upwards of four hundred miles. Few places escaped the invasion, and the cities of Dacca and Patna, the towns of Balasore, Burissaul, Rungpore, and Malda suffered severely. The large and populous city of Mooshedebad, which from extent and local position was apparently favourably circumstanced for the attacks of the epidemic, it is remarkable, escaped with comparatively little loss, while all around was severely scourged.

“ During the autumn of 1817 the disease extended itself to Muzufferpore and beyond the precincts of Bengal, and appeared at Chuprah, and at the cantonment of Gazeepore : its attacks in these places were, however, confined to the towns themselves, or villages in their immediate vicinity ; the principal portion of the adjoining country at this period entirely escaping the disease. Early in November it attacked the grand army, then stationed at Bundelcund, a portion of the Allahabad province. This army had been assembled in anticipation of a war with the Pindarees, and the centre division, consisting of ten thousand fighting men, and eighty thousand camp followers, was encamped on the banks of the Sinde, under the immediate command of the Marquis of Hastings. Here the cholera exercised its most destructive power. It is uncertain whether it made its first approaches on the sixth, seventh, or eighth of the month. After creeping about, however, in its wonted insidious manner for several days among the camp followers, it seemed all at once to have gained vigour, and burst forth with irresistible violence in every direction, extending through the whole camp before the 14th of the month. Old and young, European and native, fighting men and camp followers, were alike subject to its attacks, and all equally sunk in a

few hours under its pestilential influence. It was a common occurrence for sentries to be suddenly seized at their posts, and having been carried in, to have two or three successors before the two hours' duty was performed. Many of the sick died before reaching the hospitals; and even their comrades, whilst bearing them from out-posts to medical aid, sank themselves, suddenly seized with the disorder. The mortality at length became so great that there was neither time nor hands to carry off the bodies, which were thrown into the neighbouring ravines, or hastily committed to the earth on the spots where they expired, and even round the walls of the officers' tents. In the five days, included between the 15th and 20th of November, the number of deaths amounted to five thousand. The natives, thinking their only safety lay in flight, deserted in great numbers; and the highways and fields for many miles round were strewn with the bodies of those who had left the camp with the disease upon them, and speedily sank under its exhausting influence. The camp being now cumbered with the sick, the Marquis of Hastings determined to seek a purer air for the recovery of his sick. Although every means was put in requisition for their removal, a part was necessarily left behind. 'And as many who left the carts, pressed by the sudden calls of the disease, were unable to rise again, and hundreds dropped down during every subsequent day's advance, and covered the roads with dead and dying, the ground of encampment and line of march presented the appearance of a field of battle, and of the track of an army retreating under every circumstance of discomfiture and distress.*' The exact mortality could not be ascertained, but it appears that of the fighting men, seven hundred and sixty-four fell victims; and it was estimated that about eight thousand camp followers, or one-tenth of the whole, were cut off. On arriving at the high and dry banks of the Betwah at Erich, the army soon got rid of the pestilence, and met with returning health.

"During December the disease appears to have everywhere abated, and in January of 1818, to have become nearly extinct. Towards the latter end of February it however revived with great force, and before the close of the year the whole peninsula of India, from Silhet on the east to Bombay on the west, and from Deyrah on the north to Cape Comorin on the south, had suffered from its ravages."*

The ravages of the disease were much facilitated and increased by the superstition of the people, who, in obedience to the Brahmins, collected in prodigious multitudes on pilgrimages to certain favourite shrines, where they prayed for the cessation of what they were taught to believe the cause of the epidemic, viz., a violent and protracted battle between the god and goddess answerable for the tranquillity and happiness of that part of the world.

During the year 1818 the cholera pursued a three-fold route. First, ascending the Ganges and the Jumna, it reached the northern provinces of Hindostan, but was there checked in its progress for several years by the Nepaulese mountains, and finally entirely arrested by the Himalaya range. This is easily accounted for by the thinness of the population of these situations, and the little intercourse which takes place between the mountainous districts and lower regions. Cholera did not in India attain to an elevation beyond six thousand feet above the level of the sea; in June, 1818, it had reached the range of mountains between Nepaul and Hindostan; it was at

* *Bengal Report*, pp. 12-15. † *American Cholera Gazette*, p. 19.

Schaurapoor, many hundred miles to the north-west, in October ; and before the end of the year had ravaged nearly all the numerous cities and villages situated in the vast tract of country watered by the Ganges, the Jumna, and their tributaries. This was one of the most thickly inhabited parts of India, and the destruction of life was awful.

The second route was southward along the coast from one seaport to another, until it reached Madras on the 20th of October, 1818. Here, at the very onset of the disease, twenty medical men were attacked, of whom thirteen died.

Sadras, Pondicherry, and the whole Carnatic were affected during the succeeding year ; but even in December, 1818, it had reached Jaffnapatam, the most northern town of Ceylon, having passed thither after travelling along the whole coast of Coromandel. On the 10th of January, 1819, it broke out in Colombo, and produced dreadful devastation on the western coast of Ceylon ; the disease became exhausted there, but at the same moment burst forth with renewed vigor in Candi, the capital, 2500 feet above the level of the sea. The cholera did not arrive at the east coast of Ceylon until 1820, when it appeared imported, as was said, into Trincomalee by the flag-ship *Leander*. The epidemic was brought to the western coast of the Indian peninsula, partly by sea round Cape Comorin, and partly by the great overland lines of communication which connect the Presidency of Bombay with the Presidencies of Madras and Bengal.

It first showed itself at Bombay on the 9th of August, 1820, and in that Presidency carried off 150,000 persons.

The third route of cholera in India I have already referred to ; it was across the peninsula from the east coast to the west. It came by Nagpoor, Ellishpoor, Aurungabad, Siroor, and Poonah, to the Bombay coast, and was introduced either by troops or travellers.

From Ceylon the disease went to the Mauritius and the Isle of France, whither it was said to have been imported on the 29th of October, 1819. The distance thus traversed at one spring was three thousand miles. Thence it soon passed to the Isle of Bourbon ; and in the year 1820 to the east coast of Africa at Zanguebar. It is remarkable that it never reached the Cape of Good Hope, where the strictest quarantine was observed.

The following are the dates of its arrival in the subjoined places :—Burmese Empire generally ; Aracan, Ava, 1819 ; Malacca, 1818 ; Sumatra, 1819 ; Java, Batavia, (fearful), 1821 ; Madura, Macassar, after Batavia. Amboyna, in Moluccas, 1823. Amboyna was the farthest south-easterly point it attained to.

The disease visited Borneo and Celebes ; and in 1820 broke out with extraordinary violence in the Philippine Islands, principally at Manilla, where the natives, misled by the idea that they were the victims of poison administered by the Europeans and Chinese, rose *en masse*, and were not put down until 15,000 lives had been sacrificed in the contest. Similar manifestations of feeling led to some loss of life even in Petersburg and Paris, when cholera reached these cities. The same suspicions agitated the inhabitants of Europe during the ravages of the black death in the fourteenth century, when the Jews were slain in great numbers as authors of the plague. In Great Britain I am not aware that any such insane popular ideas were manifested when cholera appeared. In Ireland nothing of the sort was displayed ; and barbarous, cruel, and uneducated as we are said to be, the visitation was in no country met with greater intrepidity and resignation than in our native land. When a city or town was attacked in Ireland, we never witnessed the flight

of the better classes; there was neither migration into the country nor desertion of their poorer fellow-citizens. No; I record the fact with pride; every one remained, every one was ready to do his duty and abide in his place until the plague was stayed. In Dublin, and generally throughout Ireland, the members of the medical profession, and the public at large, believed the malady to be contagious, and yet the sick were never abandoned by their friends in private houses, nor in the least neglected in the hospitals.

In 1819 the cholera appeared in Siam, Bankok, Tonkin, Cochin China, and caused immense loss of life in Cambodia. In 1810 it arrived at Macao, and was said to have been imported by some ships; thence it travelled to Canton in China, and, coming to Nanking in 1820, penetrated, as far as Peking in 1821. In China the disease proved particularly fatal, on account of the denseness of the population of the Celestial Empire.

So far we have followed the cholera chiefly southward and eastward in the first instance, but afterwards far to the north; in this part of its course it passed 10° to the south of the line, and then, resuming a northerly direction, went on to Peking, in latitude 40° north. Even this portion of its progress leads forcibly to the conclusion, that it followed the track of commerce, whether by land or sea, and was not dependent for propagation on mere local influence, or climate. *There is a popular idea current, that its course was westward; such was the case in Europe, but in most of Asia it was eastward.*

I have already said that the Himalaya range opposed the progress of the disease northward from Hindostan, and that the highest altitude it attained to was six thousand feet. With respect to this latter point, I learned from my friend Captain Meredith, of the 13th Regiment, that it broke out in the medical depot at Landour in 1838, for the first time, at a height of eight, thousand feet above the level of the sea. It is worthy of remark that cholera did not come to New Holland, although it was in several islands, as Borneo and Celebes, to the north of Australia; but it is to be noted that there is little or no communication between them and the settled portions of New Holland.

Let us now trace its course westward from Hindostan. The general belief in Persia is, that the disease was brought in ships from Bombay to Mascate, Bender-abassi and Bassorah, in which places it appeared nearly at the same period, in spring, 1821.

From Bassorah and Bender-abassi the epidemic spread, in a well defined and marked manner, along the rivers and routes most frequented by commercial travellers.

Thus from Bassorah it crept up the Euphrates and Tigris; and in August, 1821, was at Bagdad, where it carried off great numbers of the Persian army then besieging that city. Along the Euphrates it proceeded to the ruins of Babylon, and by the great route of the caravans across the Desert it arrived at Aleppo. Here it did not commit great ravages, and ceased in the following December; but afterwards extended to different towns in Asia Minor, as Mosul, Merdin, Darbeker. At Alexandretta, situated on the Gulf of Scanderoon, it did not arrive until 1823. It is strange that cholera did not continue very long in Asia Minor or Syria, and did not at that period penetrate into Egypt.

From Bender-abassi in Persia cholera travelled along the great mercantile road to Shiaz in August, 1821; and thence to Yezd, where it appeared towards the end of September; but on the approach of winter lay dormant until spring, 1822, when it again showed itself, and spread north-westward,

committing the greatest ravages in every town and village situated on the great caravan road. Tauris, Korbis, Ardabil, and the provinces of Kalkhai, Masindaran, and Gilan (on the Caspian), were soon infected. In most of these places it seemed to cease for a time, but reappeared in the middle of 1823; and, travelling along the Persian seaports of the Caspian, it reached the province of Shirwan, then lately ceded to Russia. Here it ascended the river Cur, and progressed along the high roads to the fortress of Buku; and on the 21st September, 1823, Astrachan was attacked. In June, 1823, cholera showed itself in the neighbourhood of Laodicea and Antioch, (modern names), and then spread in two directions along the coast of the Mediterranean, but disappeared again both there and on the coast of the Caspian Sea.

On the whole, then, the epidemic, from its commencement in 1817 till the end of 1823, had travelled over ninety degrees of longitude and sixty-six degrees of latitude, viz. from the Philippine Islands to the coast of Asia Minor, and from the island of Bourbon to Astrachan and to the Caspian Sea.

It is very remarkable that cholera did not come to Europe by way of Asia Minor; this circumstance may perhaps be explained by the accident of its not having infected Smyrna, the chief seaport of communication between Asia Minor and Europe. Had Egypt likewise been then attacked by cholera, it is doubtful whether Europe would have been so long spared. Be this as it may, from the end of 1823 until its outbreak at Orenbourg in 1829, cholera seemed to halt on the very confines of Europe, so that we may consider the years from 1817 to 1823 as constituting the first period in the progress of this epidemic.

But although the cholera ceased to attract much attention in Europe during the interval which elapsed between 1823 and 1829, yet we are not on that account to conclude that it lay entirely dormant, for we find it continued its ravages in its original seat, India, and extended itself from Asia Minor, Persia, and China through the vast regions of Tartary and Chinese Tartary.

The thinness of the population in these half desert regions may be the reason why the progress of the disease through them was at once so uncertain and so slow. The want of frequent communication between even neighbouring districts may have baffled for a time the march of the pestilence, and may have occasioned its remarkably slow progress towards the Russian frontier. Certain it is that this march in Persia, Tartary, Mongolia, and Thibet, countries absolutely destitute of regular roads, formed a striking contrast with its rapid transmission through more populous and highly cultivated countries, or its still quicker passage from one maritime nation to another, when connected by a constant trade, as from Germany to England, from England to Canada, and from the East Indies to the Isle of France. In the latter cases the epidemic sprung from one country to another; *but it is remarkable that it never traversed the ocean at a rate exceeding that of ships.*

We next come to the second period of the history of cholera, when it broke out at Orenbourg in August, 1829, where it raged with great violence, spreading throughout the whole of that Russian province; while the disease, after long lingering in the north of Persia, assumed, in 1829, an increased energy in that kingdom, from whose northern portions it spread along the western coast of the Caspian, arriving at Salian and the province of Shirwan in June, 1830, and thus spreading to Baku, Kuba, and Sheki, in Chomath Talisch, and in the district Elizabethpol. From this the epidemic pursued a two-fold route; the one following the Kura upwards, led to Tiflis, where the mortality

reached five thousand : and thence to the Black Sea and the Caspian, until it a second time reached Astrachan, and proved much more fatal in that city than in 1823—now counting more than eight thousand victims.

From Astrachan the progress of the cholera up the Wolga, or Volga, was very remarkable, as it spread from town to town on that river, in the direct route of intercourse and traffic. I may here remark that whenever cholera travels up the highest mountain passes, as in India, or traverses the ocean, as to the Isle of Bourbon, or accompanies the caravan across the desert, as when it arrived at Mecca and Medina, or when it ascends rivers, making the towns on its banks the successive stages of journey : in all such cases, cholera, I say, seems regulated by no common physical circumstance, *except human traffic and human intercourse* ; for in other things these lines or routes differ remarkably from each other. But, to follow its ascent of the Volga : in 1830, in August, it came to Saratow, and shortly after to Kazan, Nijui-Novgorod, Kostroma, Jarislav, and so on to the circle Tischwin, in the government Novgorod, where it was only 250 versts distant from Petersburg, and where it attained for that year to its highest northern limit.

From the country between the Caspian and Black Sea it spread through the Caucasus to the Don, which it ascended, while it coasted the Black Sea to Cherson and Odessa, in September and October, 1830.

The stream of cholera which entered Russia from the northern provinces of Persia, as it may be seen from the foregoing account, soon formed a junction with that which flowed from Tartary through Orenbourngh.

In the middle of September, 1830, the disease appeared in the government of Moscow, and on the 20th of September in the capital itself, and did not cease until the following March. In Moscow a severe frost and snow set in towards the end of November, without in the least diminishing the diffusion or the intensity of cholera. Its unabated continuance throughout the whole of a Moscow winter is a fact worthy of attention. In Moscow, according to Jahnichen, there sickened between thirty and forty per cent. of the persons who had hospital duty to perform, including physicians, nurses, &c., while of the whole population not more than three per cent. took the disease. In Dublin, likewise, great numbers of the hospital attendants were affected, and many died ; still more were saved by the timely exhibition of remedies. It is not quite correct to affirm that cholera ceased in Moscow in March, for in the autumn of 1831 more than one thousand cases occurred.

During the winter and spring, 1830-1, cholera spread far to the west and south, viz. to Kalusa, Tula, Pultawa, Kiew, Podolia, Bessarabia, Bulgaria, and Silistria, and through the river provinces of the Dnieper, the Bug, and the Dniester.

In the more northern and eastern governments the disease had ceased, while it continued, though in a milder form, in the provinces Nicolajaw, Crakow, Tauris, and among the Cossacks of the Black Sea. Petersburg a second time remained untouched, although the disease had arrived at Tishwin, within one hundred miles of it, an immunity to be attributed to the strict precautionary measures adopted, and the *cordon sanitaire* drawn around the capital for the protection of its inhabitants, but not of its emperor, Nicholas, who, it is but just to add, had gone to Moscow the moment he had ascertained the existence of cholera in that city, in order to exert himself in alleviating the sufferings of his subjects. The fear of infection proved no obstacle to the czar, who zealously performed his duty on that trying occasion.

The war in Poland accelerated the invasion of cholera into that unhappy

country, into which the Russian army commenced its march on the 5th of February, 1831, in three columns, of which many battalions came from infected provinces. Thus the governments of Volhynia, Grodno, and Wilna were extensively under the influence of disease in the spring of 1831. During this campaign the Russian army lost great numbers by cholera, and Marshal Diebitch himself died at Pultusk, on the 10th of June, 1831, of a few hours illness—a circumstance which gave rise to the unfounded rumour that he was poisoned; the details of his illness have been published by an eye-witness, Dr. Koch, of the Prussian service. In Warsaw the disease appeared on the 14th of April, after the battle of Iganie, where the Poles took many prisoners, who were brought to Warsaw. In Poland the disease advanced and retreated with the infected armies in a striking and remarkable manner. Westwards and southwards from Warsaw it spread rather slowly towards the Prussian confines, arriving on the 23rd July at Kozięglow, a little town nine miles south of Czenstochowa, and but two German miles from the frontier of Silesia.

Northwards the disease had spread in March and April, through Lithuania, to the sea-ports of the Baltic, particularly Riga. From Riga the cholera advanced through Courland and Liefland (Livonia).

Petersburgh was now threatened on every side, for the disease broke out with renewed violence in the European provinces formerly affected, while most of those which had hitherto escaped suffered in their turn. Under these circumstances the metropolis, considering the great quantities of goods and passengers who arrive by water-carriage from the interior of the country, could not be expected to remain long exempted, although all possible precautions, short of entirely preventing communication with the country, were adopted; accordingly cholera appeared in Petersburgh in July, 1831. Very serious disturbances arose in the Russian metropolis among the lower orders, who considered the pestilence as artificially produced for their destruction by secret friends of struggling Poland. These troubles were only appeased by the presence of the emperor, but not before the mob had destroyed the cholera hospital, and murdered one of the physicians. During this epidemic seventeen medical men died in Petersburgh, and a great many others were attacked, some slightly, some severely. The hospital nurses, porters, and attendants suffered in a very large proportion, as did a great number of the mob engaged in sacking the cholera hospital. Cholera had already invaded several of the most northern provinces of Russia, and had arrived at Archangel in May, 1831. Archangel is the most northern emporium of commerce in the world, and is the highest latitude attained to by cholera, which in a population of 19,000 destroyed more than 1,200. In the beginning of August cholera arrived at Helsingfor; and of September, at Abo in Finland. After this, Aland and the neighbouring islands were affected, and so it passed into Sweden. Dantzic, 30th May, 1831; Elbing, 11th July; consequently eleven weeks after its appearance in Dantzic: but there was an interruption, or rather a great diminution, of the intercourse between these towns. From Dantzic the disease radiated in every direction throughout the neighbouring province. Thorn, 21st July, 1831; Konitz, 22nd August; Memel, 27th July; Königsberg, 22nd July—here a formidable cholera insurrection took place. Stettin, 25th August, 1831; Berlin, 30th August; Frankfort on Oder, end of September; Magdeburgh, 3rd October.

From Magdeburgh the disease spread extensively upwards, along the course of the Elbe. Halle, 20th December, 1831; Merseburgh, 1st January,

1832 ; Breslau, 23rd September, 1831. In the first months of 1832 cholera had nearly disappeared from the German provinces of Prussia.—Deaths, 31,000. Aamburg, 7th October, 1831. Mecklenburg, 7th October, 1831. Mecklenburg-Schwerin took most extraordinary precautions, and escaped.

Saxony, though Prussia and Austria on either side of it were severely visited, adopted strict measures of precaution, and escaped ; the cholera was neither at Leipzig nor Dresden ! Hanover also escaped, with the exception of Lüneburgh, 22nd October, 1831. Sachsen-Weimar, Gotha, Anhalt, Hessa, Brunswick, and some other small principalities all escaped, and apparently by the same means, viz., non-intercourse with infected places.

In some Saxon villages, as Cosing and Edderitz, the disease broke out but did not spread, apparently in consequence of the measures of precaution instantly put in force by the authorities.

Austria suffered most severely ; Brody (Gallicia), 5th May, 1831 ; Limberg, 22nd May ; all over Gallicia in 1831. Died 97,770.

Cracow seems to have been infected, not from Poland, but from Gallicia.

Beginning of July, 1831, cholera began in Hungary. In beginning of June, 1831, much popular violence. Spread very rapidly. Pesth, middle of July ; Presburgh, 9th September, 1831.

In Hungary cholera had ceased as an epidemic by the beginning of April, 1832, having proved fatal to at least 240,000 persons ! Vienna, 15th August, 1831 ; Prague, 28th November, 1831.

Bohemia was widely affected ; but the disease did not spread from Vienna far either to the south or west, and accordingly Carinthia, Stiermark, and the Tyrol escaped, all being protected by the strictest precautionary measures.

It is worthy of being noted that cholera remained, as it were, stationary and in a suppressed form during the winter of 1831 and 1832, in Hungary, Bohemia, and Germany. It did not spread into Saxony, Mecklenburg, Bavaria, and scarcely into Hanover, although these bordered on infected states, an immunity not to be accounted for by the existence of any natural boundaries, as mountains or rivers, for the limits are mostly conventional between the infected principalities and those which escaped ; many have, therefore, attributed their escape to the precautionary measures taken. It is strange that Leipzig was spared, while Halle suffered so long and so severely ; the situation of the former city appearing to be much more favourable to the development of *miasma* than that of the latter.

Moldavia, in spring of 1831. In Jassy the deaths exceeded 6000 out of a population of 27,000. The disease began in June ; and no doubt its diffusion was favoured by the unhealthy position of the town, and the condensation of a wretched population, chiefly Jews and Gipsies, in its filthy narrow streets. All the medical men, except three, perished with most of their families. Bucharest, July, 1831 ; Bulgaria, July, 1831 ; Constantinople, July, 1831 ; Adrianople, Gallipoli, Philippopoli, September, 1831.

It is to be noted that plague broke out in Constantinople at the same time with cholera ; but while the latter epidemic ceased towards the end of September, the former continued for several months longer. Cholera now a second time invaded Asia Minor, and, simultaneously with plague, caused great devastations. Corfu, October, 1831 ; Monastori, in Greece, November, 1831.

The destruction of religious pilgrims at Mecca was appalling. The place resembled a field of battle, so great were the numbers of the unburied dead ; and at last even the fanaticism of Mussulmans was forced to yield, and the

survivors sought safety in a hasty and tumultuous flight. Three-fourths of the pilgrims are calculated to have perished during the three days they were densely crowded together at Mecca ; and of the fugitives 10,000 fell victims on their journey. The Pasha of Egypt now repeated the precautions so successful in 1823, but this time they were taken in vain, because, as is supposed by many, they were not resorted to sufficiently soon ; be this as it may, cholera broke out first at the two quarantine stations, where the pilgrims from Arabia were detained ; and in the middle of August, 1831, it appeared in Cairo and Damietta, and towards the end of the month in Alexandria. Egypt lost on the whole 150,000. The cholera ascended the Nile, and was at Luxor, the site of ancient Thebes, by the end of September.

We next find the cholera visiting England ; it arrived about the 4th of November at Sunderland, a seaport directly opposite to, and commercially connected with Hamburgh. The cholera spread through many towns in the north of England, but did not any where rage with very destructive violence, a circumstance attributable perhaps to the more complete separation of families in Great Britain, as compared with our continental neighbours. The existence of the disease was announced on the 27th of January, 1832, in Edinburgh, and on the 10th of February in London. The ravages of the cholera in the metropolis were comparatively insignificant, its victims during the whole epidemic not exceeding 1500.

It is exceedingly remarkable, how many of the great towns of England either escaped infection altogether, or were visited by only a trifling outbreak of the disease.* Up to the 24th of June, 1832 (that is, during a period of about eight months since its first appearance in Sunderland), the total number of cases throughout Great Britain, inclusive of London, amounted to only 14,796, and the deaths to 5,432.† The disease, it is true, continued in many places to linger long after the above date, and reappeared as an epidemic in some places in 1833 and 1834 ; but still we are quite warranted in concluding that on the whole, in Great Britain and Ireland the cholera did not count 30,000 victims. In Ireland, particularly in Dublin and Sligo, the mortality was much greater than in England—an occurrence which may, perhaps, be accounted for by the bad diet of the Irish lower classes, and the crowded state of their dwellings, it being well known that in the worst quarters of the city many families reside on the same floor, and frequently more than one in the same room. “ In London,” says Dr. Elliotson,‡ “ the greater part of the people are well fed, better fed than in any other part of the world ; they eat more meat, and the flesh is of such quality as is scarcely to be found in any other country. Besides which, they are better clothed and more comfortable ; and instead of trashy wines they have good sound ale and porter, and malt liquor of all kinds. But in Paris the water the inhabitants drink is very bad ; the people are crowded together, I know not how many families in a house, with little ventilation. The streets are narrow, the houses dirty ; and the population live upon what Englishmen consider trash, not roast beef and mutton, but all sorts of dishes made up of bread and vegetables, with a little meat boiled in water to colour it or give it a flavour ; and drink not good beer, but thin wine.”

Certain it is, no matter how we may attempt to account for it, that cholera

* Cholera commenced in Liverpool on the 12th of May, and in the meantime had visited Hull, York, Leeds, Manchester, and Warrington.

† *Medical Gazette*, vol. x. p. 400.

‡ *Medical Gazette*, vol. xii. p. 628.

was much more destructive in Paris than in London, 385 deaths having occurred in one day, 8th April, 1832, in the former city. Nothing has puzzled or perplexed the continental physicians more than the comparative immunity from cholera enjoyed by England, notwithstanding their predictions that *there* its ravages would attain to a *maximum*, for they contended that in the English towns many circumstances would contribute to render the disease more liable to spread, as, for example, their very dense population, the extreme poverty and bad diet of the lower orders, and the damp, foggy nature of the climate. Now, I believe that the reproaches made by foreigners respecting the extreme penury of the lower orders in England are not well founded, at least comparatively speaking, and with reference to the same class of persons in the continental cities; and I am persuaded that in English cities the diet of the poor is superior to that of the continental poor. Indeed, foreign physicians have tried their ingenuity to account for the slowness of the ravages of cholera in Great Britain, some attributing the immunity to tea, some to the quantity of meat we consume, and some to the vapours arising from our numerous coal fires; and each of these hypotheses have been met by objections, for the Chinese, the most national tea-drinkers in the world, were wofully scourged by cholera; and the city of Halle, in Germany, the most devastated town of that country, uses nothing but coal for firing. It is to the more substantial nature of English fare, to the superior cleanliness of that nation, and to their living in families separated from each other, that we must attribute their comparative exemption from cholera, an exemption the more remarkable, when we consider that in England commercial and private travelling between town and town is more rapid, and ten times more frequent than on the continent.

Cholera first appeared in Paris on the 24th of March, 1832, and it has been argued by those who deny the contagious nature of cholera, and its importation from abroad, that in France it broke out suddenly, not on the confines, but in the heart of the kingdom, and consequently that it must have arisen spontaneously in the metropolis. Before we attach much weight to this argument, we must have very strong proofs that the facts are as above stated. Now, it is very remarkable that cholera was officially announced to exist at Calais only eight days after it appeared at Paris: and when we recollect how unwilling the authorities in all seaports of hitherto unaffected nations, have invariably been to acknowledge the existence of cholera, it is not by any means improbable that cholera may have existed in Calais before it broke out in Paris—a supposition confirmed by the report of Arnaud, Moribaud, and Gendrin, who witnessed in Calais, towards the end of 1831, many very violent cases of cholera resembling the Asiatic; nay, even after the cholera had manifestly appeared in Calais, many persisted in declaring that its victims died of common enteritis.

We see cholera introduced probably from England to Calais, and immediately after to Paris, from which it radiated in all directions by slow and varying stages all over the kingdom. The position of Paris, and its daily communication with England, rendered it almost the first prey of the disease in France. Once there, the cholera moved along the different lines of communication in every direction, its route not governed by any of the laws observed by epidemics depending on atmospheric changes; and its gradual progress from Paris, as a centre, towards all parts of the circumference of France, presenting a course obviously opposed to that of such epidemics.

From England cholera soon spread to Ireland; the following dates of its

arrival were communicated by Dr. Barker, whose official situation in the Board of Health gave him the best opportunity of ascertaining the progress of the disease.

Places.	Dates of outbreak of Cholera.
Dublin	22nd March, 1832.
Arklow	8th April, "
Banbridge	9th April, "
Cork	12th April, "
Ramelton, County Donegal	12th April, "
Naas	13th April, "
Belfast	14th April, "
Warrenpoint	17th April, "
Stranorlar, County Donegal	22nd April, "
Tralee	28th April, "
Galway	12th May, "
Limerick	14th May, "
Waterford	1st July, "
Wexford	21st August, "

It is worthy of remark that Dublin, Cork, and Belfast were affected about four months before Waterford and Wexford. Now a steamer plies twice a week between Dublin and Cork, and Dublin and Belfast, *while there is no direct communication by steam* between Dublin and Waterford, or Dublin and Wexford; and consequently it appears probable, from the dates, that Cork and Belfast were infected from Dublin, while Waterford and Wexford escaped for many months, not being exposed to infection from this source. At all events, the fact that Waterford and Wexford should have remained so long without the disease is very remarkable, and, if not sufficiently accounted for by their more indirect and less frequent intercourse with Dublin, it may perhaps be explained by their trade with England consisting chiefly of the export of agricultural produce, rather than the interchange of passengers.

LECTURE XXVIII.

CONTAGIOUS CHARACTER OF CHOLERA.—TREATMENT.

WE have hitherto followed the route of cholera in the old world; we have now to trace it in the new.

“The disease commenced about the 8th of June, 1832, in Quebec, in boarding-houses and taverns in the *Cul de Sac*, a low, uncleanly, and ill-ventilated part of the city, crowded with emigrants of the lowest description, with sailors, and other persons of irregular habits.”*

Thus we find that cholera appeared in America first at Quebec, just at the season when the spring stream of emigration from England reaches that city. The following account proves that cholera might be thus transmitted:—

“The following letter from the surgeon of the British barque *Brutus*, to the president of the Board of Health of Liverpool,† conveys the melancholy intelligence of the cholera having broke out among the passengers *eight days after* leaving the river Mersey, and which induced the captain to put back. It appears from a statement subjoined to the letter, that between the 27th of May, the period when the first person was attacked, and the 13th of June, the day on which the vessel arrived at Liverpool, 117 cases had occurred, eighty-one died, and twenty had recovered.

“‘With the deepest feelings of regret, I have the painful duty to perform of transmitting to you one of the most melancholy and distressing accounts of cholera, which occurred on board the British barque *Brutus*, bound for Quebec, from Liverpool, with three hundred and thirty passengers. The first case presented itself on the 25th of May (being the eighth day after we left the river), in a strong, healthy man, thirty-five years of age; the symptoms were all well marked, the spasms particularly severe; under the usual means of treatment he recovered. The next case was an old woman of sixty, who died in ten hours after the commencement of the attack. The disease continued gradually to increase (notwithstanding every means having been employed to arrest its progress) until the night of Saturday, the 2nd of June, when we were a good deal tossed about by a heavy sea, and dark hazy weather; it spread to such an alarming extent that on Sunday, most of the ship’s crew being attacked, and having lost some of them the week before, we were obliged to bear up again for Liverpool. It is impossible to describe the scene of misery on the 3rd, 4th, and 5th—people dying in every direction—the greater number of them destitute of the common articles of bed-covering. On the 6th the weather became more favourable, the disease less severe, and the number of new cases diminished, which has since been on the decline.

“‘W. W. THOMPSON.’”

On the 10th of June, 1832, it appeared at Montreal, and here, as at Quebec, it immediately assumed the character of a most destructive pestilence.

* See the official Report of the Board of Health, Quebec *Cholera Gazette*, p. 72.

† *Cholera Gazette*.

The following interesting account* of the route of cholera during the first stages of its progress in North America, is from the pen of S. Jackson, M.D., secretary to the consulting Medical Board of Philadelphia. Dr. Jackson is a non-contagionist, as will abundantly appear from his narrative, upon some of the leading facts of which I may hereafter take occasion to make a few observations. It is worthy of remark that the medical men of America have far outstripped their European colleagues in medical statistics. The weekly, monthly, and annual accounts of diseases, deaths, &c. in each of their great cities have been long published systematically and regularly, and that with a degree of accuracy to which we are strangers. Some of the results of this praiseworthy habit appear in Dr. Jackson's account.

"From the numbers of emigrants who, about this period, had landed at Quebec, and arrived at Montreal from England and Ireland, a first impression was created that they had been the means of transmitting the epidemic across the Atlantic. A more close investigation into the facts connected with the commencement of the disease in these cities served to destroy this supposition. It could not be traced to importation. The emigrants and lower classes of the Canadians were attacked simultaneously in both cities. Numbers of the emigrants were in circumstances eminently predisposing them to suffer attacks of the disease, and they and the lower Canadians were precisely the description of persons most obnoxious to the ravages of epidemic cholera, and such as have been universally observed to be its first victims.

"The lines of communication between the cities of Quebec and Montreal, and the cities of the United States, are by the Richelieu river, lake Champlain, and the northern canal leading to Troy and Albany; or by the St. Lawrence to lake Ontario, to Buffalo, and by the Erie canal leading to Rochester and Albany. It was confidently expected that the disease would penetrate into the United States from Canada by these routes. Along the first, many cases of the disease did certainly occur in the persons of emigrants, but they terminated without its communication to others. On the contrary, the epidemic manifested a decided predilection for the shores of the St. Lawrence, successively attacking the towns and villages along its banks, then following the borders of lake Ontario until it entered lake Erie.

"While attention was directed to the northern and western boundary, supposed to be threatened by the invasion of the disease, it suddenly and most unexpectedly appeared in the city of New York.

"The first case occurred, it is said, on the 24th of June, when a man, a native citizen, residing at the corner of Gold and Frankfort-streets, was attacked by the disease. Four cases soon succeeded, the location of which was in Cherry-street. The subjects were Irish emigrants, who had arrived in Quebec in the autumn of 1831, and had resided in Albany until the month of May, when they removed to New York.

"On the 27th of June the disease manifested itself in Belvue Alms-house, distant about three miles from the city. The patient was an aged woman who had not left the house for three years, who had held no communication with the city, and no admission into the ward she occupied had taken place for a month. Several cases immediately ensued in this and the other wards of the house. The epidemic reached its maximum in this establishment on the 11th July, and terminated on the 4th August.

"In the city of New York the climax of the epidemic arrived on 11th of July, from which period it continued very steadily to decline.

* *Cholera Gazette.*

"The time that elapsed from the outbreaking of the epidemic at Quebec and its appearance at New York is a period of sixteen days, or nineteen at Belvue Alms-house. The distance between the two cities in a direct line is four hundred and fifty miles.

"It is to be remarked that all the intermediate cities on the seaboard of the province of New Brunswick and Nova Scotia, of the states of Maine, Massachusetts, and Rhode Island, remained entirely exempt from the epidemic; and even to the present period, except in Providence, Newport, and Boston, no cases have as yet appeared.

"In this city the epidemic was much more tardy in its progress than it had been in the Canadas or in New York. The first decided case of cholera occurred on Thursday, July 5th. A man of the name of Musgrove, residing in the cellar of a house in Filbert-street, near Schuylkill, Fifth-street, was attacked with symptoms of malignant cholera on that day. This man had but lately been discharged from the New Jersey prison; he had been affected with diarrhoea for two or three weeks previous to the cholera symptoms. The disease proved fatal on Sunday the 8th. The next case was a black man residing in St. John-street, Northern Liberties, above Callow-hill. He had been employed working on board a ship from England lying at Pratt's wharf. He was seized with symptoms of malignant cholera the night of Tuesday, July 9th, and died on Friday. This man was perfectly sober in habits; no premonitory symptoms existed.

"No other cases presented themselves until Sunday, July 14th, when two females, occupying a room in a dwelling in Coate's-street, were the victims of the pestilence in its most aggravated shape. Both these females were exemplary in their habits of life, but appeared to be infirm in health. The husband of one of these unfortunates had arrived on Saturday, July 7th, from New York, exceedingly alarmed respecting the cholera. He was taken sick the next day, and died on the succeeding Friday. On Saturday the widow felt unwell, and without advice took sixteen grains of calomel in the evening. She was soon afterwards seized with vomiting and purging, and in the course of the night she sunk into collapse. She died Sunday night. The mother of the deceased husband on Sunday morning complained of feeling unwell, but without any definite symptoms. Having been up with her daughter-in-law during the night, her uncomfortable feeling was attributed to fatigue. She was then going about the house, and had been out on an errand. She was requested to lie down as a matter of precaution, and a small dose of opium administered to her. This was at eight o'clock in the morning. Dr. Schott, who was in attendance an hour afterwards, went up to her chamber to inquire into her state. He found her lying on the floor; copious dejections of rice-water looking fluid had occurred, and she was in complete collapse: death ensued in the evening. These were the only cases to which the slightest suspicion of communication by contagion could attach; but on the same day a Frenchwoman, temperate in habits, about fifty years of age, living in Kensington, beyond the close built part of the town, at the head of West-street, was also a victim of the disease. This woman had not been from her dwelling for three weeks; her house is isolated, being surrounded by kitchen-gardens for the supply of the market. She had been affected with diarrhoea since Friday, for which she had dieted, but had taken no medicine. The case proved fatal next day.

"From this time not more than three or four cases occurred, all scattered in different quarters, particularly Kensington, Northern Liberties, and South-

wark, until the 27th and 28th July, when the epidemic fairly set in, and cases continued daily to be developed. The disease attained its height in this city on the 5th, 6th, and 7th of August, since which time it has gradually declined, and appears now to be extinct.

"Taking the 27th or 28th of July as the proper commencement of the epidemic in Philadelphia, there will be a period of twenty-four or twenty-five days intervening between its first appearance in New York and this city. The distance in a direct line is about ninety miles.

"A comparative view of the population, number of cases, and deaths, in the cities which have been brought under observation, presents the epidemic in an interesting point, and exhibits in a clear manner the character it assumed in this city.

Date of Report and Place.	Population.	Cases.	Deaths.	Ratio of Cases to Population.	Ratio of Deaths to Cases.	Ratio of Deaths to Population.
Sept. 30, Quebec -	32,000*	5,783	3,292†	1 in 5 $\frac{1}{7}$	1 in 1 $\frac{1}{2}$	1 in 10 $\frac{1}{2}$
" 1, Montreal -	23,000‡	4,385	1,853	1 in 6 $\frac{1}{2}$	1 in 2 $\frac{1}{2}$	1 in 15 $\frac{1}{5}$
Aug. 22, N. York -	140,000§	5,547	2,782||	1 in 25 $\frac{1}{3}$	1 in 2	1 in 15 $\frac{1}{2}$
Sept. 13, Philadelphia -	160,000¶	2,314	935	1 in 70	1 in 2 $\frac{1}{2}$	1 in 173·29-183

"The results of this table show conclusively, that the causes productive of cholera were less numerous in the city of Philadelphia than in Quebec, Montreal, or New York, or were so modified as to possess a much less degree of activity. The causes of this result, so favourable to Philadelphia, important in the hygienic history of cholera, and consoling to humanity, as placing this formidable affection to so great an extent under control, it is interesting to investigate.

"The following are the circumstances which, existing more particularly in Philadelphia, may be regarded as influential in ameliorating the violence of the epidemic cause, circumscribing its activity, and diminishing its fatality.

"1. The plan on which the city is built, arranged in hollow squares, separated by wide and paved streets, prevents excessive crowding of the inhabitants, procures free ventilation, and gives facility to the means of cleanliness. It is to be regretted that any deviation has been permitted in the original design of Penn, whose sagacity and foresight has been so amply demonstrated in the circumstances of the late epidemic.

"2. The abundant supply of wholesome water, placed at the command of the whole community, affords a healthful beverage, and gives the means of the most complete cleanliness, by washing the dirty gutters of the streets, close alleys, and lanes.

"3. The well arranged measures of sanitary police, devised and actually carried into effect by the councils of the city, and the boards of commissioners of the district, and the sanitary committees appointed by them, and by the Board of Health. The measures consisted in a thorough investigation into all existing nuisances, and in their immediate abatement; in a complete

* "Permanent population, 27,000; transient population, 5,000.—Total, 32,000.

† "Protestant grounds, 1,244; Catholic cathedral, and cholera grounds, to 25th September, 1,574; at St. Roch, 470.—Total, 3,292.

‡ "Permanent population, 25,000; transient population, 3,000.—Total, 28,000.

§ "Estimated as remaining by Mr. D. Leslie.—*Journal of Commerce*, August 8th.

|| "Report of the Inspector.

¶ "Population within the bill of mortality."

system of cleanliness of the city steadily pursued; in the early establishment of numerous local hospitals, provided with ample medical attendance, nurses, and every means applicable to the treatment of the disease; and in spreading before the public early information, derived from the consulting medical committees, of the methods—hygienic, dietetic, and medicinal—best adapted for guarding against the attack of the disease, or to arrest the symptoms at its onset.

“4. A very considerable influence may be attributed to the annunciation made by the mission sent to Canada, immediately on its return, and before the epidemic had commenced its career in this city, of the different periods of the disease, and especially of the existence, in almost every instance, of premonitory signs and a preliminary stage, with a description of the symptoms indicating its existence. This information was communicated to the public by the sanitary committee through the daily journals of the city, by handbills liberally distributed, and by placards on the corners of the streets. The Board of Health adopted the same measures, and pursued the same course. In this manner the whole community, before the beginning of the epidemic, was instructed in the most important points in the general knowledge and management of this affection—its commencing period, the premonitory symptoms, its general curability in that state, the necessity of immediate attention and medical advice, and the methods of relief. These facts had been overlooked, and this attention to the instruction of the public was entirely neglected in Quebec and Montreal, and in New York. From being taken unprepared by the epidemic earlier than was anticipated, they were not communicated to the public until the measure had been adopted in this city, and when the epidemic there had already attained its maximum of intensity.

“5. The moral resolution, calmness, and a perfect freedom from alarm and panic generally manifested by our citizens, and inspired by a thorough confidence in the efficacy of the preventive means enforced, in the advantages for salubrity of the city, and in its medical resources, contributed in no small degree to diminish the number of cases and the intensity of the attacks. No stores were closed on account of the epidemic, and not more citizens left the city than usually abandon it every summer. A stranger entering our streets, from the busy throng and cheerful aspect of all he met, would never have suspected the existence of an unusual and a desolating scourge.

“6. The treatment of the disease generally pursued in the city, in the preliminary stage, had most probably no small share in preventing the development of the disease in innumerable instances. In the lighter forms, it was limited chiefly to diet, rest, tranquillizing doses of anodynes, or mild diffusibles, with occasionally the mildest laxatives or gentle cathartics, conjoined with sinapisms or other rubefacients. The drastic and perturbing cathartics were seldom if at all prescribed, and the stimulant practice but rarely resorted to.

“The foregoing circumstances appear to us as those principally instrumental in producing the favourable results attending the epidemic in this city. As such they acquire a high degree of interest, and afford most instructive lessons as regards the measures of municipal and civil regulation connected with sanitary police.

“In its general features and character, the disease differed in no respect from the many descriptions that have been made since it first attracted attention in Asia, and subsequently in its progress through Europe. It will be unnecessary to make the repetition here; it is, however, important that

the fact should be signalized, that during the prevalence of the epidemic very few persons in the city were entirely exempt from some derangement or disorder of the digestive functions. It is not probably exaggeration to assert that two-thirds of the population were affected in this manner, which is to be attributed entirely to the epidemic influences. It should also be stated that, in the majority of cases which assumed the decided character of malignant cholera, preliminary symptoms had existed, varying in duration from a few hours to several days. In those rarer instances which were not preceded by any premonitory signs, the subjects were the aged, the intemperate individuals, who had committed some great imprudence in diet, or whose constitution has been enfeebled, and such cases were generally, if not universally, fatal.

"The chief mortality of the disease existed in the public institutions. It was much lighter in private practice. The following table exhibits the cases of deaths, as reported in private practice and the public institutions. The reports, however, do not exhibit the results of private practice in as favourable a light as they really were. A considerable number of physicians in the most respectable practice reported only the cases that proved fatal, or exceedingly severe. They did not return to the Board of Health the lighter cases, which yielded to the operation of remedial measures. The mortality of private practice in the reports appears, in consequence, to have been far greater than it really was.

"Table of Cases and Deaths, with Ratio as occurring in private practice, and the public institutions.

	Cases.	Deaths.	Ratio of Deaths to Cases
Private Practice, . . .	1175 . .	270 . .	1 to 4 3-16
Hospitals, . . .	874 . .	342 . .	1 to 2 5-9
Alms House, . . .	174 . .	92 . .	1 to 1 41-46
Arch-street Prison, . .	86 . .	46 . .	1 to 1 20-23

"Had the returns of cases in private practice been complete, the proportion of cases would have been much greater; it would have ranged probably as 1 to 70 or 80, or even more.

"In the hospital practice, the first cases introduced were nearly all fatal. This circumstance is to be accounted for from the universal observation, wherever cholera has prevailed epidemically, that the worst constitutions were the first to suffer attacks. In the commencement of the epidemic, persons first attacked, unaware of their danger, and the nature of the affection, neglect application for aid, and resist the offer of hospital assistance until reduced to a hopeless condition. Besides, misled by the authority of the English and Scotch writers, extensive means had been prepared for warming the patients by heated air, steam, and other means. Experience in a short time proved the pernicious effects of this system. The patients succumbed most rapidly under the exhaustion induced by the profuse watery exhalation from the skin caused by this treatment."

Why the cholera, *if an imported disease*, should have broken out nearly simultaneously in Quebec and Montreal, is very easily accounted for, since both are the receptacles of British and other foreign emigrants; on the same principle, we must explain its appearance so soon after at New York, where, no doubt, it arrived by a separate importation from Europe—a circumstance which will prevent us from feeling the same surprise with Dr. Jackson, that

between Quebec and New York *all the intermediate cities on the sea board escaped*, at least for a few months. This is analogous to the exemption of Waterford and Wexford, during several months that cholera raged in Dublin and Cork. I gave Dr. Jackson's Report at much length, because it is intended to be conclusive against the theory of contagion; while it, in my opinion, contains strong internal evidence of a contrary tendency.

In the United States cholera spread far and near, as might be expected from the wonderfully rapid and frequent intercourse that takes place all over the Union; but, except in the condensed population of the chief seaports, its ravages were not great. It is curious to observe how little Philadelphia suffered in comparison with Montreal, Quebec, or New York; no doubt because its population is less condensed, and live in families more separated from each other. In making this observation, I do not mean to undervalue the power of predisposing causes, such as poverty, bad diet, intemperance, &c., which prevail more in the latter cities than in Philadelphia. Still, comparing America with those European and Asiatic countries which suffered most, the only constant difference we can discover is, that the separation of families is much more complete in the United States than in any other country except England; and to this difference, consequently, we are justified in referring for an explanation of the remarkable fact, that England and the United States fared better than other countries, notwithstanding their acknowledged superiority above all in the facilities of internal communication. A wish to be brief forces me to conclude the subject of the cholera in North America with the following list of places, and the dates of its arrival in each.

Albany,	. . . .	3rd July, 1832.
Troy,	. . . .	16th July, "
New Brunswick,	. . . .	July, "
Rochester,	. . . .	July, "
Baltimore,	. . . .	August, "
Washington,	. . . .	August, "
Boston,	. . . .	August,* "

Cholera did not reach South America at all, a fact explicable by the great length of the voyage from the infected countries, which reason also protected the Cape of Good Hope, the West Indies, and New Holland. It is a curious fact, that New Holland, for the same reason, has, until lately, been free from measles, scarlatina, and hooping cough, although the colony is fifty years old. But now that the intercommunication between it and other parts of the world has become much shorter and more frequent, owing to the rapid spread of steam navigation, it has been visited with all these diseases.

We must now return to Europe; and first, with respect to Portugal, it appears from the following editorial paragraph in the *Medical Gazette*,† that the disease was imported. "The *London Merchant* steamer sailed from England for Oporto, on the 25th December, 1832, and arrived at the mouth of the Douro on the 1st January, 1833, having lost seven persons on her passage, by cholera. The troops which she took out with General Solignac landed immediately at Foz, about two miles to the west of Oporto. By a letter from a medical gentleman of that city, which we have lately seen, it appears that the cases of

* I am not certain of the dates of its first appearance, where the day of commencement is not mentioned; but in all the above places the cholera prevailed during the above months.

† Vol. xii. p. 123.

the disease occurred at Foz, on the road to, and in Oporto, before the 15th of January; and we know, from other authorities, that it has since spread to Coimbra on the south, and Vigo on the North."

Mr. Lardner, a very intelligent surgeon, and formerly a pupil of mine, has written a very interesting paper on the progress of cholera in Portugal.—*Lancet*, 1834-5, p. 314. He is a decided non-contagionist, but his facts seem to me to be strongly corroborative of the doctrine of contagion. Among other admissions, the following is almost conclusive. "Lisbon was not visited by cholera for a considerable time after Aveiro; which fact may give the contagionist a lift, for, during the siege, there existed no direct communication by water between Oporto and Lisbon. The Miguelite batteries would not allow a ship to enter the Tagus, and Donna Maria's ships kept a strict blockade outside the bar." The epidemic took six months to travel slowly by land from Oporto to Lisbon. Had the communication by sea between these two ports been open, no doubt it would have reached Lisbon sooner: in America how quickly it extended from one seaport to another!

It is a remarkable circumstance, and one which ought to have great weight in the discussion respecting the contagiousness of cholera, that *cholera has in no recorded instance appeared in any place sooner than the ordinary modes of communication might have brought it from some infected station*. Again, it can easily be proved that *the rate at which cholera travels varies with the rapidity of that communication*. A few weeks were sufficient to transport it from the ports of Britain more than three thousand miles across the Atlantic to Canada, while it took six months to creep along the interrupted line of communication between Oporto and Lisbon.

From the preceding observations it will appear, 1st, that cholera has had no fixed rate of progress; 2nd, that it has spread in every direction, sometimes northwards, sometimes southwards, and other times east and west, its route being determined not by the points of the compass, but by the great lines of internal and international communication.

Cholera never got to any of the West Indian Islands, nor to British (formerly Dutch) Guiana, Demerara, nor any of the embouchures of the great South American rivers, Amazon, Orinoco, or La Plata, though the soil and climate, with the immense tracts of inundated and swampy lands would there seem most favourable to its development.

In September, 1835 (*Lancet*, vol. for 1834-5, p. 782), "the cholera had nearly ceased its ravages in the south of France, and took a south and easterly direction along the countries bordering the Mediterranean Sea. It penetrated into Piedmont in spite of the strictest precautions, and prevailed with more or less intensity at Nice, Coni, Livorno, Genoa, Florence." From this extract we do not learn the dates of its arrival at the above places, but they were probably according to their respective distances from France. The kingdom of Naples was not infected until a still later period; at Naples, probably, September, 1836. It attained the maximum at Naples on the 22nd November, 1836; Algiers, 14th October, 1837; Bona, September, 1837.

To trace it accurately, its secondary routes and dates of reappearance should be made out; it would then be found to have returned often on its steps.

Thus, in September, 1837, Marseilles was attacked for the third time, while in the same season of the year, 1837, it reappeared also at Berlin, Prague, and Dantzic.

It is worthy of remark, that cholera began at Naples, which carries on a

perpetual commercial intercourse with Marseilles, about a year before it commenced in Rome! August, 1837. The disease travelled southwards in the north of Italy, setting out from France; northwards in the south of Italy, starting from Naples.

Since the year 1838, cholera ceased to be heard of in any part of Europe, if we except an isolated case or two occasionally reported in the medical journals, and which were probably nothing more than aggravated attacks of English cholera; but in the latter part of 1847 it again made its appearance in the eastern parts of Russia, from whence, however, owing, I suppose, to the strict precautionary measures which were at once adopted, it has disappeared without spreading farther west. I shall now shortly trace the origin and course of this epidemic, with which we may yet be visited; for as, I have shown you in my last lecture, the epidemic which appeared in Moscow in September, 1830, did not reach England until November, 1831.

"Some time in the early part of 1842,* cholera appeared in the northern parts of Burmah, and, passing in a southerly direction, committed great ravages, and caused great consternation, at Ava and Ameerapoor. After traversing these cities, it passed down towards Rangoon, pursuing the course of the Irrawaddy and its tributaries, and attacking chiefly, according to Burman report, the towns and villages situated on the banks of these rivers. Still pursuing a southerly course, in August it appeared in the Burmese town of Marteban, situated on the junction of three great rivers—the Salween, the Attaran, and the Gyne, and nearly opposite to the British settlement of Moulmein. In September it appeared in Moulmein, and continued to prevail, with greater or less violence, till July, 1843, when it disappeared, although an isolated case was occasionally seen during the two following years. Soon after its entrance into Moulmein it was reported to have appeared in the villages to the south, on the banks of the Salween, and on the sea-side, and then, still travelling due south, it reached in November the second principal Burman town, Tavoy. Tavoy is a place of considerable size, and is situated about one hundred and fifty miles south of Moulmein, on the bank of a broad shallow stream, loaded with debris from the neighbouring mountains. Cholera raged here with great fury for three or four months, and then gradually disappeared. Soon after entering Tavoy it was heard of in the villages round the city, and, travelling south, it showed itself shortly afterwards (some time in January, 1843) in Mergui, the third principal town in the provinces, situated on a small island formed by two branches of the Tenasserim river, opening into the Bay of Bengal, about one hundred and fifty miles to the south of Tavoy."

It prevailed throughout the Indian provinces at intervals during the next two years, and early in 1845 it raged with great violence along the banks of the Indus, and also in Afghanistan. Thence it spread into Persia, Tartary, Hindostan, and the pachalic of Bagdad. In May, 1846, it broke out with frightful severity at Teheran, carrying off as many as 300 a-day for several weeks, and reducing the population of that town by at least 20,000 souls.

From this town it proceeded in two directions, one south-west in the line of Ispahan, Shiraz, and Bagdad; and the other north-west to Tabreez. In October some cases occurred at Saliam and Lankeram, frontier Trans-Caucasian towns of Russia. In the south it spread along the Tigris; and in December it raged with great violence at Mecca, "*being supposed to have been conveyed thither*

* *Researches &c.*, by E. A. Parkes, M.D., 1847, p. 158.

by the pilgrims from Bagdad." Early in the year 1847, it appeared to the west of the Caucasus, in the Russian army fighting against the Circassians. "By the middle of May it was at Tiflis, and also at Astrachan at the mouth of the Volga; and where it reached its greatest intensity about the end of July. The towns of Kars and Kutais also, lying westward of Erivan and Tiflis, with many of the surrounding villages, were attacked about the same time. In August it broke out at Batoum on the eastern shore of the Black Sea, and soon afterwards at Erzeroum and Trebizonde, to the southward; reaching the last-named city about the 9th of September. Shortly before this time, it had appeared at Taganrog, Kertsch, Mariopol, and other towns on the sea of Azoff, and near the mouth of the Don; subsequently spreading in a northerly direction towards the more inland provinces of Charcow, Kiev, &c. Again were all the most stringent preventative measures found to be utterly ineffectual in arresting, or even in slackening, the progress of the disease. By the Russian official reports in the middle of September, we learned that it was gradually spreading more and more into the heart of the empire, by two distinct lines; one more northerly and along the course of the Volga towards Saratoff, Tamboff, Kasan, Toulá, and Moscow; and the other from the north shores of the Black Sea along the lines of the Don and Dnieper, and their numerous branches. The general direction of the epidemic has been north-westward; and it has been remarked that the route followed in the present year has been very nearly that along which the 'disease-producing something' travelled in 1831. On the last day of September it appeared at Moscow, and about the same time at Odessa and Perekop, on the north-western shores of the Black Sea, having previously ceased, or nearly so, at Taganrog, Mariopol, and other parts to the eastward. In the middle of October, we are told by official returns that, without counting Georgia, the Caucasus, and the country of the Cossacks of the Black Sea, the disease existed with greater or less severity in sixteen different governments of the Russian empire. At the same time it was announced that it had again broken out in some parts of the north of Persia, as Tabreez, Khoi, &c., and also at Bagdad.

"In the second week of November the *St. Petersburg Gazette* stated that 'the most western points the cholera has yet reached are the town of Alexandrof in the government of Kherson, and the district of Olgapol in Podolia,' which is not above thirty miles from the Austrian frontier. To the northward it had been travelling from Moscow to Novgorod in the direction of the capital, and also in a course nearly due west to Dwinaberg, at a very little distance from Riga, and within forty miles of the Prussian territory. A letter from Vienna of the 20th ult. announces that some cases had occurred in the circle of Tarnapol in Galicia."

This latter extract I have taken from a pamphlet published by Dr. Gavin Milroy of London, which contains an excellent concise history of the cholera epidemic.

The next account which we have of this epidemic I read from the Russian *Cholera Gazette* of January 29th, 1848. Dr. Thielmann, writing in it, says:—"During the month of December the severe cold so completely arrested the progress of Asiatic cholera, that there was reason to believe it would disappear entirely. It has altogether ceased in the provinces around the Caspian; and, with the exception of Moscow, Mohilew, and Witepsk, it is no longer met with in any of the great cities or towns of the empire. Even in these and in smaller places the disease has assumed so mild a character, that it appears to be on the point of extinction.

"Letters from Constantinople, of the 1st January, announce the gradual disappearance of cholera in that city. The epidemic was then chiefly confined to the Arsenal; and out of 210 attacked, only 58 died. Accounts from Bagdad, of the 7th of December, state that the cholera had almost entirely disappeared from Kerkoula and Snleymania. Letters from Mossol, dated the 12th of December, mention that the cholera had ceased in that city, after having killed 300 persons; and intelligence from Aleppo, of the 18th, states that it has appeared at Beregik, on the banks of the Euphrates, and was causing from ten to fifteen deaths daily."

Then, as in the previous epidemic, it was, however, only smouldering, to break out ere long with great fury, and probably pursue the same route it did in 1831-'32; for, according to an official account received in the beginning of June of this year (1848), there had been no fewer than three hundred thousand persons attacked, of whom one hundred thousand perished, and the proportion of persons attacked was to the population nearly as great as on the former visitation. Its progress was in all respects similar to that of 1832, when it abated on the occurrence of the frost, and re-appeared in the spring, and proceeded onwards. It had declared itself at Nijni-Novgorod, and at Moscow. At Moscow there were twelve cases and five deaths between the 8th of April and 12th of May; and at Novgorod, twenty-two cases and twelve deaths between the 17th and 24th of April.

Let me now, before concluding, call your attention to some points in the treatment of this contagious pestilence. When cholera existed in Dublin in the spring of 1832, the modes of treatment principally relied on were, bleeding in violent spasmodic cases, emetics of ipecacuanha and mustard, the application of heat externally and internally, stimulants, but, above all, calomel, not in small but in large and frequently repeated doses, either alone or combined with opium. I need not tell you that the mercurial treatment came to us sanctioned by high authority: it was a remedy to which the experience of Indian practitioners had given a high character, but in our hands, I must say, it proved of very little value. Be this as it may, I must say that I had reason to be dissatisfied with this mode of treatment; I had tried it myself, and had seen it tried in every way which ingenuity or experience could suggest, but I had seen it fail almost in every instance.

About the middle of summer the epidemic began to spread fearfully among those who had hitherto been exempt from its attacks; many persons in respectable life were seized, and my private practice afforded numerous opportunities of becoming practically acquainted with the disease. In several cases to which I was called in, the malady had not advanced to the stage of collapse; the symptoms of cholera, properly so called, had merely commenced; the intensity of the disease was still far away, and a fair chance was afforded for the operation of therapeutic agents. In most instances I tried calomel and all the ordinary remedies with profitless results; my treatment proved too often ineffectual; and some persons whose lives I highly valued perished in spite of all my efforts, leaving me grieved for their loss, and mortified by my own want of success. I found that I could no longer place any confidence in calomel, and determined in my own mind to give up a remedy which had so signally failed; it was, however, a question of deep anxiety to me, what I should select instead, or to what article in the *Materia Medica* I should have recourse, where so many had proved utterly valueless.

About this time I happened to be called on to attend a case of obstinate diarrhoea with the late Dr. Hunt. The case was an extremely harassing one,

and had resisted all the ordinary remedies. I advised the use of acetate of lead and opium in full doses ; this was given, and I had the satisfaction of finding that the diarrhœa soon yielded. Before this period I had received a letter from that able practitioner and excellent man, Dr. Bardsley of Manchester, directing my attention to the use of acetate of lead in large doses, in that form of diarrhœa which occurs towards the termination of long fevers, that is to say, the diarrhœa which precedes and accompanies inflammation of the glands of the small intestines. I had subsequently, at Sir Patrick Dun's Hospital, several opportunities of witnessing the truth of Dr. Bardsley's remarks. I saw that in many cases during the course of fever, where the patient was low and prostrated, symptoms of intestinal congestion came on followed by diarrhœa, which many persons thought would end in ulceration of the glands of Peyer ; and I found that in such cases the acetate of lead was the only remedy that could be relied on. I observed, too, that, contrary to the prevailing opinion on the subject, it could be given in large doses with perfect safety. You are aware that Dr. Bardsley has shown that it may be given to children in very considerable doses without any bad effects, and that in adults he has pushed this remedy to the extent of twenty or thirty grains in the day, without any unfavourable consequences.

With these impressions I came to the resolution of trying the acetate of lead in the next case of cholera which offered a chance of deriving benefit from any kind of treatment. It is known that there are some cases in which the disease at once assumes so frightful a malignity, that the patient is lost from the very moment of his seizure. This hopeless and intractable malignity is not peculiar to cholera ; it is seen in fever, scarlatina, croup, measles, and hydrocephalus ; in fact, there are certain forms of all diseases in which the best directed efforts of medical skill not only fail in curing the disease, but even in retarding its progress. But there are cases of cholera where the patient is not struck down at once, where the disease is not developed at once in all its awful intensity, and where time, brief though the space may be, is allowed for the play of therapeutic agencies. It is in such cases the acetate of lead may be given with some prospect of success, and it is by such cases alone, and not by those which are necessarily fatal *ab initio*, that its value is to be tested.

Before we proceed further, I may observe that the principle on which the calomel treatment was employed in cholera arose from almost constantly observing that there was a total deficiency of bile in the stools. Soon after the supervention of an attack, the alvine discharges were observed to be white, and without the slightest tinge of bile ; and on this very remarkable symptom practitioners dwelt almost exclusively, thinking that the patient's only chance lay in restoring the secretion of the liver. Now it is obvious that the absence of bile in the stools is no more a cause of the disease than is the deficiency of urea in the kidneys, or of serum in the blood. Viewing the disease in this light, it would be just as reasonable to give a diuretic to restore the secretion of the kidneys, as to give calomel to produce a flow of bile. The liver ceases to secrete, not only in consequence of the injury done to its vitality by the proximate cause of cholera, whatever that may be, but also from a mechanical cause, namely, from a diminution in its supply of blood.

It may appear strange that when the same given number of vessels go to the liver and come from it in all times, that the quantity of blood circulating in it should be greater at one time than another. I have not time at present

to enter fully into this subject ; but it is a fact admitting of sufficient proof that the quantity of blood circulating in any organ is very much modified by the state of its capillaries. The quantity of blood also which goes to a gland varies according to the peculiar state of that gland, being greater during its period of active secretion than when it is at rest. But in a case of cholera, where the capillary vessels of the intestinal canal from the stomach to the rectum are actively engaged in taking up the serum from the whole mass of blood, and pouring it into the cavity of the digestive tube, there is an enormous drainage from the system, and there must be consequently a deficiency of blood somewhere. Now it would appear that a quantity of blood, sufficient for the purposes of secretion, is abstracted not only from the biliary, but also from the urinary system ; and, hence, it appears just as reasonable to give diuretics to restore the urinary secretion as to give calomel to excite the secretion of the liver. It would be, *a priori*, as original a mode of treatment, and be equally as successful. I have therefore no hesitation in saying, that the calomel treatment has no claim to merit on the ground of theory, and, as far as I have observed of it in this country, it seems to be of no practical value in the treatment of cholera.

With regard to the quantity of acetate of lead which may be given in this disease, and the mode of administering it, a few words are necessary. I have already stated that when I first tried it, I prescribed it in large doses, fortified by the authority of Dr. Bardsley, and by my own experience of its utility in many cases of diarrhœa. It appears that before I recommended the acetate of lead, it had been used at the Cholera Hospital in Grangegorman-lane. Of this I was not aware, until a book was subsequently published by Dr. Cranfield, which I afterwards reviewed in the sixth volume of the *Dublin Journal of Medical Science*, and I feel that on that occasion I did fair and impartial justice to its merits. I certainly did not know that the acetate of lead had been given at the Grangegorman Hospital ; for, in the very able report of cholera, as observed at that institution, published by one of its officers, Mr. McCoy, the treatment relied upon appears to have been the mercurial, and not a word was said of acetate of lead. It had been used there by one physician, but it was given in small doses, insufficient to produce decided effects, and no stress had been laid on its value as a remedy in cholera by the practitioners attached to the hospital. Be this as it may, acetate of lead was not known to the medical men of Dublin and to the practising apothecaries before I recommended it. It had been frequently employed in the form of injection by them ; but no one had given it in large doses by the mouth, or introduced it to the notice of the profession. I believe I can fairly claim the merit, such as it is, of being the first to give it in large and effectual doses.

The mode in which I administered it was this : a scruple of the acetate of lead, combined with a grain of opium, was divided into twelve pills, and of these one was given every half hour, until the rice water discharges from the stomach and rectum began to diminish. In all cases where medicine promised any chance of relief, this remedy was attended with the very best effects. It gradually checked the serous discharges from the bowels, and stopped the vomiting. I need not say of what importance this is : as long as these exhausting discharges continue, as long as the serum of the entire body continues to be drained off by the intestinal exhalents, what hope can we entertain ? What benefit can be expected from calomel and stimulants, when every function of the digestive mucous membrane seems to be totally

extinguished, except that of exhalation, and while profuse discharges, occurring every five or ten minutes, are reducing the patient to a state of alarming prostration? Knowing the inevitable fatality of all cases where these discharges went on unchecked, I was happy at having discovered a remedy which seemed to possess more power in arresting them than any yet devised, and this impression was confirmed by the results of subsequent experience.

That the acetate of lead will succeed where all other astringents fail, was proved by the case of Mr. Parr, of this hospital. Having got an attack of threatening diarrhoea at a time when cholera was prevailing in Dublin, this gentleman used various kinds of astringents, and took so large a quantity of opiates that he became quite narcotised, but without any relief to his symptoms. When I saw him, he was as bad as ever, and was beginning to exhibit appearances of collapse. I advised the use of pills composed of acetate of lead and opium, in the proportions already mentioned, and had the satisfaction of finding that before night the diarrhoea had ceased. The pills are to be used one every half hour while the diarrhoea remains unchecked, but as it begins to diminish, the intervals between each pill may be prolonged, and in this way the patient may be gradually prepared for leaving off the remedy altogether. I have frequently given in this way as much as forty grains of acetate of lead in twenty-four hours, with great advantage to the patient, and without any bad consequences ensuing.

It is unnecessary for me to say any more on this subject. If I chose to mention names, I could bring forward the names of many medical men in Dublin, whose lives, I am happy to state, were saved by the use of this remedy. I may, however, observe that this mode of treatment has now become universal here, and that it has almost completely superseded the use of calomel and opium. I will confess that this fact is a source of high gratification to me, and I point also with pleasure to the fact that since it became extensively known, as it did during the last invasion of the epidemic, the profession has gained more credit than before, and the number of cures has been proportionally greater.

I may remark that the most convenient way of making the pills is to add five or six grains of powdered liquorice to the scruple of acetate of lead, and mixing into a mass by means of mucilage of gum-arabic. Year after year, since I first made public the value of this plan of treatment in cholera, I have received the most gratifying letters as to its successful employment from practitioners in India. The following observations of Dr. Parkes, who had the opportunity of witnessing two recent outbreaks of cholera in India, in 1843 and 1845, while serving as assistant surgeon in one of H. M. regiments, I look on as most valuable testimony. I quote from his *Essay on Cholera*, to which I have already referred. At page 207 he says:—

“Of all the astringents which have been used in cholera, none has appeared to me so efficacious as the one recommended by Dr. Graves, viz. the acetate of lead. It is true that it did not arrest the purging in all cases, but it possessed this great advantage, that, in the form of pill with opium, it did not seem to increase the irritability of the stomach, but rather to allay it. I used to give two or three grains with a quarter of a grain of opium, every half hour for the first two or three hours, and then every hour for a variable period, according to the intensity of the case. It was often found that the vomiting first ceased, and then the purging; the algid symptoms were of course unaltered, but, as already said, no remedy yet known possesses any influence over them, and it is the best way to leave them altogether to themselves, and take

the chance of their not advancing to their full extent. The only bad effect I ever noticed after the employment of these large doses of lead was subacute gastritis; but this is a comparatively trifling affair, and can generally be overcome by relays of leeches to the epigastrium during the period of reaction."

Dr. Thom, surgeon of the 86th regiment, in an account of the cholera as it affected that regiment at Kurrachree in 1846, thus speaks of the combination:—

"The acetate of lead, in doses of one, two, or three grains, and one-eighth of a grain of acetate of morphia, was employed to stop those profuse watery dejections which continued in some cases after reaction had taken place; and in this point of view it was a most useful remedy. Of course in those cases where vomiting and purging are the first symptoms, and collapse appears to be their consequence, the early use of this remedy was resorted to, and with very good encouragement."*

* *Medical Times*, 1847, vol. xvi. p. 151.

LECTURE XXIX.

INFLUENZA.

I ADVERTED in the two last lectures to the subject of influenza, and endeavoured to point out some of the principal features in which epidemics differ, as to their mode of spreading, from diseases which owe their diffusion chiefly to contagion. I stated that contagious disorders were comparatively slow in their progress, attacking different masses of the population in succession, and exhibiting, in general, a tendency to affect distinct classes of the community at different periods. On the other hand, when an epidemic like influenza makes its appearance, every thing comes under its influence almost simultaneously, and, like a cloud, it overshadows the whole country in the space of a few weeks. Such was the course of the epidemics of 1837 and 1847, and so it was with the influenza of 1782, which travelled from the east, and left traces of its ravages in almost every quarter of the globe.

In the case of epidemics which traverse the whole, or nearly the whole extent of the inhabited portion of the earth, it would be a matter of great interest to ascertain the place of their first appearance, or their point of departure. The cholera, as I have already shown you, commenced in Hindostan, and in its route followed the great lines of communication and commerce: its general progress has been northwest: but in Portugal, Spain, and Italy, it has travelled in various directions; its progress, however, being in general along the great lines of communication leading from the part of the frontier where it first broke out, towards the large towns in the interior. It is probable that influenza pursues some certain and uniform course, independent of the physical circumstances which retarded, accelerated, or stopped the progress of Asiatic cholera. It is likely, too, that its rate of spreading is subject to fewer variations. Cholera took years to accomplish its journey from Hindostan to Britain: but, once established there, it crossed the Atlantic at a single step. The march of influenza has not as yet been mapped out; from the accounts which have reached us in 1837, it seems to have travelled at the same time in very different directions, arriving at Cape Town in January, during mid-summer, and in London in the same month, during mid-winter; while it is reported to have reached New Holland, and to have raged among our antipodes, two months earlier, and in 1847 it pursued the same variable course.

It is obvious that influenza does not depend upon mere variations of temperature, for we have had many seasons as changeable as the present, without the occurrence of any such epidemic. Besides, influenza is known to be a disease which travels through the most different climates, preserving its peculiar character and identity in all. It is not to be supposed that the same temperature, or the same barometrical and hygrometrical conditions of the atmosphere, prevail here as in Spain, France, Germany, or Sweden; yet in all these countries the influenza has exhibited a uniformity of cha-

racter, and an identity of type, proving beyond all doubt that it is one and the same disease. That influenza is not produced by a low temperature is proved by the occurrence of the disease in the month of June, in that of 1762; and in the months of May and June, in that of 1782; as well as by its appearance at the Cape of Good Hope in the middle of summer, as I have already noticed. In 1837 influenza increased rapidly in this city, while the weather was remarkable for its serenity and agreeable mildness. In London many were led, by a limited view of the subject, to consider its origin as connected with the breaking up of the frost, and the peculiar state of atmosphere attending a general thaw. Influenza is not influenced in its progress by situation or locality; it does not creep along the shores, or follow the course of large rivers, or select low marshy districts in preference to drier and more elevated soils.

From what has been said, it is obvious that influenza does not depend upon vicissitudes of temperature, peculiarities of situation, or supposed moist or dry states of the atmosphere; neither does it arise from the prevalence of certain winds, for meteorological observation furnishes many instances of the prevalence of such winds without any influenza; and, on the other hand, it frequently travels against the wind. The same views are also advocated by the late Dr. Holland; at page 184 of his "Medical Notes and Reflections," he says, "It is true that some authors, and in concurrence with common opinion, have attributed these epidemics solely to atmospheric changes and the influence of extraordinary seasons upon the human body. And it must be admitted, on behalf of this opinion, that certain of the seasons during which they have prevailed have been remarkable and anomalous; and further, that in common catarrh, arising from obvious causes of atmospheric change, many of the symptoms resemble the lighter and more transient forms of the disorder in question. But there is something manifestly beyond this relation, and independent of it. A disease which has appeared and spread at different seasons, in the middle of summer as well as in the depth of winter; which has been found traversing whole continents, continuing this course through many successive months, and often assuming even a definite direction of progress; which affects contiguous places in different degrees and at different times; which frequently continues in the same place for several weeks or months, under every appreciable variety of atmospheric state; and which often affects, almost simultaneously, large masses of people living on the same spot, while others in adjoining localities are exempt; such disease cannot be considered as due to any of the known qualities or variations of the atmosphere to which the term weather is applied."

It is probable that influenza may depend chiefly on telluric influence—upon some agency connected with variations in the physical conditions which operate on the external surface of our planet; but on this point we can only speak conjecturally, in the present state of our knowledge, and we should not allow ourselves to lapse into mere speculative and fruitless disquisitions. How often the variations to which I have alluded occur, and whether they are subject to any general law remains yet to be determined. Several epidemics of this description have been distinctly recorded in the eighteenth century, viz., in 1708, 1712, 1728, 1733, 1743, 1758, 1762, 1767, 1775, 1782, 1788, 1789; while in the portion of the nineteenth century already elapsed five influenzas have occurred, viz., in 1803, 1831, 1833, 1837, and 1847. This list is as complete as our medical annals will permit us to make it, but still we cannot rely on it as including all the epidemics of this nature which

have occurred during the last one hundred and forty-seven years. Supposing it correct, it would indicate the average return of influenza once every ten years.

In making calculations of this kind, medical writers should always take care not to confound influenza, a disease which spreads rapidly over the whole globe, regardless of season and climate, with those local catarrhal affections that occur in all temperate climates almost annually. One thing, at least, is certain with respect to this disease, that it does not arise from exposure to cold, or, as it is termed, from catching cold. This I have repeatedly observed. Persons who took the best care of themselves, who always went warmly clothed, and were never exposed to the inclemency of the weather, took the disease just as readily as the half-clad labourer, who had to undergo daily exposure to all the vicissitudes of our changeful climate. But it should be observed that although the attack of influenza in any individual was not necessarily dependent on exposure to cold, yet in many instances it was evident that catching cold determined the immediate access of influenza, or increased its violence when present.

I have also observed that it seldom attacked persons labouring under acute diseases until the period of convalescence arrived, when their immunity ceased, and they became just as liable to its invasion as others. Thus, patients labouring under typhus escaped as long as the fever continued; but frequently, on the very day the crisis occurred, and symptoms of returning convalescence appeared, they were seized with influenza. This is a very unfortunate circumstance. Just as a patient had struggled through a fever of seventeen, nineteen, or twenty-one days, he was attacked with a new and dangerous malady, which again placed him in a situation of imminent danger.

You must have observed that influenza does not appear in every individual with the same violence, or exhibit in all symptoms identical in their intensity or duration. As in most other epidemics which affect society at large, the different constitutions and ages of the individuals, and the different states in which the morbid influence finds them, modify greatly the nature of the attack; so that although a vast number are affected, they suffer in very different degrees, and the complaint exhibits every variety of shade, from simple coryza, or catarrh, requiring no treatment, to catarrhal fever of the worst and most unmanageable description. Many persons laboured under what would be termed a common cold, were it not from the extreme frequency of such symptoms, combined with other circumstances which mark the nature of the disease. The same thing was observed with respect to cholera; few persons, during the prevalence of cholera, escaped without undergoing some form of bowel attack, but the mode and character of such attacks varied very remarkably.

Influenza is not by any means so severe or so rapidly fatal a disease as cholera; but the mortality which it has produced is greater, as it affects almost every person in society, while the ravages of cholera were comparatively limited. Consequently, although the proportion of deaths among a given number of individuals attacked was greater in cholera, the mortality for society at large is much greater in influenza. In Dublin it is extremely difficult to obtain any thing like exact statistical details of the comparative mortality at different periods, for no general registry of deaths is kept in this city. The nearest result to truth that can be determined is from the number of interments in the two chief cemeteries of the city, at Glasnevin and at Harold's Cross. The latter was not long opened when the epidemic prevailed

in Ireland in 1837; but I obtained the following return from the former, which exhibits the number of interments for the months of January and February, 1837, and for the corresponding months of the previous year. I also give the return for the months before and after the influenza.

In December, 1835 . . . 355	In December, 1836 . . . 413
January, 1836 . . . 392	January, 1837 . . . 821
February, 1836 . . . 362	February, 1837 . . . 537
March, 1836 . . . 392	March, 1837 . . . 477
<hr/>	
Total for four months 1501	2248
Increase during Influenza, 747.	

Assuming, then, that in Prospect Cemetery alone about seven hundred persons were buried who died of influenza, and that there were at least three times as many persons buried in the other churchyards of the city and suburbs, we may conclude that in Dublin alone more than four thousand people died of the influenza of 1837, not taking into account the greater number who, although they got over the immediate attack of the epidemic, sank afterwards under various diseases, of which influenza had laid the foundation. In Paris the same epidemic influenza caused likewise a great mortality; for it appears from a statement in the *Révue Médicale*, that the average daily mortality, during the first fifteen days of February, amounted to one hundred and ten, which is more than double the usual average. This only refers to persons dying in their own houses, and does not include the deaths in the hospitals. Eighteen thousand die in private houses annually in Paris—*i.e.*, on an average, about fifty daily. The rate varies from twenty to seventeen a day, according to the season; but during the first fifteen days of February it rose from fifty-eight to one hundred and fifty-two in the day.

I have obtained a similar return to that of 1837, for the months of December, 1847, and January, 1848, being the months in which the late epidemic of influenza prevailed in Dublin; it is as follows:—

Prospect Cemetery, Glasnevin.

1846, November . . . 571	1847, November . . . 697
December . . . 867	December . . . 1141
1847, January . . . 756	1848, January . . . 912
February . . . 700	February . . . 786
<hr/>	
Total for four months 2894	3536
Increase during Influenza, 642.	

This return does not include those who died in the fever sheds and North Union Workhouse, amounting to 215 in the month of December, 1848, alone, and many of which were doubtless cases of influenza; but, by omitting them, we avoid the increased mortality caused by the epidemic of fever which then raged, and thus obtain a nearer approximation to the truth.

This return was most kindly furnished to me by Mathias J. O'Kelly, Esq., the present Secretary of the Cemetery Company. To it I am enabled to add a similar return from Mount-Jerome Cemetery, Harold's Cross: very few poor persons are interred in this cemetery.

In November, 1846 . . . 55	In November, 1847 . . . 66
December, 1846 . . . 113	December, 1847 . . . 124
January, 1847 . . . 90	January, 1848 . . . 104
February, 1847 . . . 74	February, 1848 . . . 72
<hr/>	
Total for four months 332	366
Increase during Influenza, 34.	

Influenza in 1837 was very fatal where it attacked persons who had been subject to chronic bronchitis, or who had happened to labour under any form of asthmatic affection; for this, I confess, I was not quite prepared. And, when first called to attend asthmatic persons labouring under influenza, I expected that, from being accustomed to periodic attacks of dyspnoea and cough, they would be better qualified to bear the disease, and would continue to exhibit that tenacity of life for which asthmatic persons are so remarkable. The old also suffered considerably; but some very old persons had extremely severe attacks of influenza, and yet escaped. I attended, along with Mr. Maurice Collis, the venerable Judge Day, the cotemporary of Goldsmith, who, at the age of ninety-three, had sufficient strength of constitution to shake off a most violent seizure. Two gentlemen, who had fought at the battle of Bunker's Hill, also survived the disease in a severe form; but, generally speaking, it was very fatal among the aged. Influenza was also very fatal among persons who laboured under disease of the heart; and in this instance age made no difference as to result, for the young and old were equally liable to danger. I have also seen it fatal in cases of deformity of the chest, from curvature of the spine and other causes. The mortality was also very great among persons in advanced life who laboured under tussis senilis: in a word, all persons labouring under pulmonary irritation, or weakness, were exposed to very considerable danger. Subsequent experience has proved also, that where influenza left behind an obstinate and irritating cough, and where the constitution had a scrofulous taint, the disease was very apt to pass into tubercular phthisis. Among all the families I know, but two escaped the influenza altogether: one consisted of eleven children, besides the parents and servants, and resided in Pill-lane, in the very centre of the city; the other family consisted of five females, advanced in life, and who lived in one of the fashionable streets.

Very nearly similar remarks apply to the influenza of 1847, but the depression of the powers of life was, I think, much more marked, while the feverish symptoms were less than in 1837. Consonant with this observation, I remarked that death occurred with symptoms of *paralysis* of the lungs in all the cases which I saw that terminated fatally: this appeared to be the manner in which the peculiarly depressing influence of the epidemic was manifested.

Allow me to digress here for a moment, for the purpose of making one observation, which a review of several cases of influenza, attended with severe pulmonary symptoms, suggests to me. It is a common error in pathology to confound effects with causes, and where the cause of a disease is not, and probably cannot be known, to fix on some peculiar and leading symptom, and to attribute to it the origin of all the rest. But it is quite illogical to say that one symptom is the cause of another, or that because it has the precedence, it should also have the initiative. I alluded to this error in a former lecture, when speaking on the pathology of scarlatina. It has been over and over again asserted, that the dropsy of scarlatina arises from the previous inflammatory affection of the skin, or subcutaneous tissues; and the same thing has been asserted with regard to the desquamation of the cuticle. But I have brought forward facts and arguments to prove that this opinion is not founded in truth, and that dropsy, as well as desquamation of the cuticle, may take place where there has been no eruption whatever, and not the least trace of cutaneous or subcutaneous inflammation.

Now, when a person, after exposure to cold, gets pneumonia or bronchitis,

followed by anasarca, it is quite a common thing to hear it said that the anasarca had its origin in the pulmonary affection, and that the effusion of serum depended on obstructed transmission of blood through the lung. The same mode of explanation has been applied to disease of the heart as the cause of dropsy. This explanation, however, appears to me inadequate and unsatisfactory. Many cases of influenza were accompanied by extreme congestion of the lungs, and consequently imperfect aeration of the blood; and yet I have not in a single instance noticed the occurrence of dropsy as an immediate or remote consequence. Were dropsy dependent on the state of the lung to which I have alluded, it would have shown itself in some cases at least; and yet I have seen individuals attacked with influenza labouring under orthopnoea and severe pulmonary symptoms for weeks, without observing, in any instance, the slightest anasarca or œdema. In one case, indeed, that I saw, an old gentleman at Rathmines, the feet and legs were much swollen; but this I attributed to his having remained so many days and nights in his chair, unable to lie down. This has strongly impressed upon my mind the conviction, when dropsy comes on after disease of the lung, that the one is not always the consequence of the other, but that both often result from the same cause, and owe their origin to the same morbid impression on the system. This error has been further confirmed by the results of treatment, practitioners having found that measures adapted to remove congestion of the lung tended also to remove the dropsy; forgetting here, that where two symptoms closely allied arise together from the same cause, you will be most likely to remove both by those means which are effectual in removing either. The principle which I have here briefly alluded to will apply to many other combinations of disease; it is one of general application and, in my mind, of no ordinary importance.

The epidemic of 1837 differed in many points from that which prevailed about three years previously. The influenza of 1833-'34 was by no means so generally fatal as then, and in 1847. It was characterised, like both, by considerable irritation of the tracheal and bronchial mucous membrane, but not by the severe bronchitis and pneumonia which have been witnessed in later cases of the epidemic. The former raged in Dublin chiefly during the months of March and April. It came on very suddenly, with rapid pulse, hot skin, great prostration, languor, and excessive sweating; there were cough, coryza, and not unfrequently vomiting at the commencement. One of the most prominent symptoms, however, was headache, which was excessively severe. There was also, *cæteris paribus*, more debility, and the patients did not bear bleeding so well as they did in 1837. But the most material point in which they differed was the comparative mortality. The disease in 1834 carried off some very suddenly with cerebral symptoms, and proved fatal to others from oppression of the chest and dyspnoea. Few, however, died who survived for a week after they had been attacked, and the disease rarely left behind it a cough at all approaching in violence and obstinacy to that which in the later epidemics harassed convalescents. On the whole, the fever accompanying the influenza of 1834 was more acute, and set in with more marked depression of the nervous system, and the disease was much less liable to become chronic.

It would conduce greatly to the advantage of medical science, if a brief and accurate history was left to posterity of the character, symptoms, pathological phenomena, and treatment of every epidemic. Such a record would prove a guide and beacon to the practitioners of future ages—would enable

them to draw important comparisons between the existing and the past—and thus arrive at a more fixed and available knowledge of the nature and habits of epidemic complaints.

There are, I have no doubt, many curious forms of epidemic disease which pass through society either wholly unnoticed, or confounded with others to which they have some slight affinity. I think I have seen particular forms of scarlatina, measles, small-pox, and fever, which have not been accurately noted, although they prevailed as epidemics. If every form of epidemic was noted, and the order of its succession marked, it would remain to be ascertained by posterity whether there may not be what may be termed cycles of epidemics, and whether disease, after having manifested itself in determinate forms, following each other in determinate succession, may not commence again after the lapse of a certain number of years, and pursue the same course. This is not impossible, if we suppose that epidemics are connected with telluric or electrical influences, which are known to observe a periodic course. Were this ascertained, a sort of observatory of epidemics could be easily established in the various civilised states.

In treating of the nature of influenza, it will be proper to consider in the first place the general constitutional symptoms which attend it, and afterwards glance at those which are chiefly of a local description. In some cases of influenza there is little or no fever, as in the last epidemic; neither does the presence of fever seem essential to the more severe or even fatal cases, although, generally speaking, fever occupied a very prominent position among the group of symptoms by which the disease was characterised in 1837. I have seen cases in which there was nothing like regular fever from beginning to end, and yet which terminated fatally.

I remember treating two patients who had been labouring under orthopnea for ten days, and yet in these patients the skin was cool, the pulse in general soft and very little above the normal standard, and the tongue, though furred, quite moist; but so great was the distress of respiration, that they were obliged to remain sitting up in bed night and day, panting for breath. This, however, was the exception with respect to severe cases in 1837, the majority being attended with very considerable fever. In the slight cases the fever was scarcely perceived, or altogether absent; as was the case with myself and some of my friends. We had coryza, hoarseness, cough, and some degree of pulmonary irritation without any fever. At first I thought that fever was an essential part of the disease; but the cases to which I have alluded, and others of a similar kind, have convinced me that this is not the fact—a conviction fully ratified by the late influenza.

Where the fever appeared it came on with the usual symptoms of pyrexia—namely, sense of chilliness, particularly about the small of the back, without decided rigors, flying pains in the limbs and joints, and headache, generally referred to the situation of the frontal sinus. There were from the commencement great restlessness, jactitation, and more or less insomnia. Sickness of the stomach, loss of appetite, and tendency to diarrhoea were also common symptoms. The skin was in general hot, and without any tendency to moisture, although in some cases there were occasional perspirations. These, however, were seldom general or regular, and lasted only for a few hours. The pulse was accelerated and tolerably full, occasionally even hard and wiry. These symptoms were very subject to slight exacerbations and remissions, and seldom continued the same for more than twelve hours together. Where the disease existed for any length of time in a violent

form, the tongue usually became furred and loaded, the patient lost all relish for food, and in many cases complained of harassing thirst.

In severe cases the most prominent symptoms were cough, wheezing, restlessness, dyspnoea, and loss of sleep. The appetite was in general more or less impaired; but I have seen some severe cases in which it did not fail remarkably for several days; the restlessness and jactitation attended many cases throughout. You are not, however, to suppose that this always depended on the presence of pain or fever. The headache was not in all severe or distressing; and I have already stated that the fever was not so general or so violent as one would suppose. The loss of sleep depended upon derangement in the tone of the nervous system, independent of fever; for I have observed it in numerous patients, in whom scarcely any febrile excitement was observable; but when complicated with fever, both react upon and aggravate each other. The skin, where fever was present, was hot: this heat was interrupted by occasional perspirations, which, however, did not give much relief, or tend to diminish the amount of increased temperature. Sometimes the skin was hot, and at the same time bedewed with perspiration during the whole course of the disease; but this was rather unusual.

The pulse in influenza is seldom the same throughout; one time you will find it quick and rather hard; in six hours afterwards it will be quick and soft; in six or eight hours more it will appear as if about to fall to the normal standard; and next day you will find it quick and jerking again. These changes are accompanied by corresponding alterations in the temperature and humidity of the skin. But what is most remarkable with regard to the pulse is, that it sometimes becomes full and rather strong and wiry, towards the termination of the disease; and this you will observe in patients who have been suffering for days, or even weeks.

I attended, with the late Mr. Colles a gentleman in Castle-street, aged sixty, of a full habit, and subject to attacks of dyspnoea and cough during winter. This gentleman was attacked with influenza, ushered in and accompanied by severe fever; and it was observed that as the disease advanced his pulse became fuller and stronger, so that it was thought advisable to bleed him. He was bled with apparent relief, and the blood was extensively buffed and cupped. This phenomenon I have observed in every case attended with fever, and indeed in some where no appreciable fever existed. Thus, in a gentleman in Dame-street, who had no fever, and who merely laboured under teasing cough, distress of respiration, and oppression of the chest, the blood on being drawn exhibited very distinct buffing and cupping. The same thing happened in the case of a gentleman in Dominick-street, whom I ordered to be bled under exactly the same circumstances.

The gentleman in Castle-street, whom I attended with Mr. Colles, exhibited a very curious state of pulse. In him, as in many others, the pulse was extremely variable as to its strength, being at one time hard and firm, and at another soft and weak. If you were to visit him in the morning, from the feel of the pulse you would be inclined to give him stimulants; if you saw him for the first time on the evening of the same day, you would think venesection indispensable. This gentleman's state was hopeless; he laboured under great suffering, dyspnoea, and inability to cough up the viscid mucous secretion, and yet his pulse was both strong and firm. Mr. Colles, whose attention I directed to the state of the pulse, observed, that were he to feel it without seeing the patient, or knowing his previous history, he would be greatly inclined to bleed him immediately. I have adverted in a former

lecture to this state of the pulse, as connected with irritation of the nervous system rather than with any inflammatory state of the constitution in general ; and, therefore, I shall not now recur to the subject further than to remark that I have never observed any disease in which the pulse formed so bad a guide as to the propriety of venesection as in influenza. In some cases venesection was most useful, although the pulse was in every respect natural ; in others it could not be borne even to the smallest amount, although the pulse was hard and wiry. Neither was the state of blood an unerring guide ; for even in those who sank rapidly from the debilitating effects of moderate bleeding, the blood was very much cupped and buffed.

"The most important question," says Dr. Holland, "in the treatment in influenza doubtless regards the extent to which antiphlogistic means may be carried, or the fitness of employing them at all. And the point as to bleeding is that which stands foremost here, and has chiefly embarrassed all practitioners. The most general precept on the subject is liable to exceptions ; but collecting what on the whole is safest and most expedient, it must be one which forbids bleeding as an ordinary practice in this disorder. The adynamic type throughout in the greater number of cases ; the singular disproportion in all between the seeming severity of the inflammatory symptoms and their real slowness or nullity ; the actual failure of bleeding in mitigating the violent and painful cough which seems most expressly to require it, and the frequent success of remedies precisely the reverse of this ; all show a speciality in the disease to which we must refer more or less directly in every question of practice. Whatever the cause or precise seat of irritation, it is certain that it has rarely the character of true membranous inflammation. In truth, the same reasons which prevent or limit bleeding in whooping-cough apply no less to the peculiar cough and irritation of the influenza. We have rarely any authority for it in the state of the pulse, which neither in strength nor frequency bears relation to these inflammatory symptoms ; while the difficult or painful respiration which often suggests the remedy furnishes evidence against its fitness, by becoming frequently more laborious than before—the effect of larger accumulation in the bronchial cells, and of diminished power."

I shall now mention the particulars of a very remarkable case which came recently under my notice. I was called to visit a lady somewhat advanced in life, but of a good constitution, and labouring under the ordinary form of influenza, with considerable dyspnoea and cough. In the course of eight or nine days her symptoms began to decline ; she got up, and seemed convalescent. As the cough and pulmonary irritation still prevailed to a certain extent, it was thought advisable not to allow her to eat meat, but she obtained leave to take some fresh haddock. After dinner her cough becoming more troublesome than before, she had frequent recourse to a stale and rancid cough bottle containing squill and ipecacuanha. During the evening and night she felt her dinner like an undigested load, and her stomach turned. She vomited, and was purged and griped incessantly, until I saw her next day. On the third day the medicines I had ordered moderated the purging, but the nausea and occasional vomiting continued. On the fourth day the purging had entirely ceased, but the sickness of stomach persisted. I sought to appease this by the ordinary means, which failing, I examined her on the following day, and discovered a strangulated hernia. At this time the pulse had scarcely risen above the natural standard. Mr. Cusack operated that night with his usual skill, and all the symptoms depending on incarcerated

hernia ceased. But they had scarcely disappeared when the pulmonary symptoms and the copious secretion from the bronchial tubes recurred, and she did not survive this relapse of the influenza more than a few days.

This is an instructive example of an insidious combination of circumstances very likely to mislead a practitioner; for as the vomiting was for a day or two accompanied by a looseness of the bowels, the suspicion of hernia would not strike the attention. It is plain that in this case indigestion produced an increased and morbid activity in the motions of the alimentary canal, which led to the incarceration of the portion of gut. Up to a certain moment the symptoms depended merely on one cause; after that period strangulation took place—an occurrence which could not be easily diagnosed, as vomiting, one of the most striking symptoms, had previously existed.

When diarrhœa occurs, it is generally at the commencement of the disease; and it is remarkable that this state is frequently exchanged rather suddenly for one of an opposite character. Thus, when you have succeeded in checking the diarrhœa with chalk mixture and opium, a state of costiveness frequently ensues, requiring the daily use of purgatives and enemata. I have now witnessed several cases in which the moderate use of opiates and astringents brought on constipation, requiring the use of strong purgatives, and enemata thrown up with Read's syringe.

In influenza, as in many other febrile affections, the lungs become considerably engaged; the disease first attacks the nose and throat, then the larynx and trachea, and finally the ultimate ramifications of the bronchi. There are several other affections which commence in a similar way—as ordinary catarrh, bronchitis, and measles. In influenza most persons have the nose and throat affected in the beginning; the inflammation creeps gradually along the lining membrane of the air passages, until it involves the greater part or the whole of the bronchial mucous membrane. The progress of the inflammation is extremely rapid, and in the course of twenty-four or even twelve hours, the lungs become engaged.

There is, however, much difference as to the extent to which this inflammation proceeds. In many cases it is limited to the nose and throat; the patients complain of coryza, hoarseness, and slight cough. In others the trachea also is more or less affected, and the cough is more troublesome; but, generally speaking, the latter as well as the former cases are unattended with fever. The patients eat and drink as usual, go about their ordinary business, and sleep tolerably well at night. This appears to be the general course of the disease when the inflammation is limited to the nose, throat, and upper part of the air passages; when it spreads farther and attacks the first ramifications of the bronchi, there is some dyspnœa and tightness of chest, the cough is much more troublesome, and the appetite and digestion are somewhat impaired; but persons in this state, although resting badly and eating but little, will continue to go about—constantly, however, complaining that they are very ill. When the smaller divisions and ultimate ramifications of the bronchi are engaged, there are soreness of chest, remarkable dyspnœa, and constant harassing cough; the headache is also aggravated, the patient loses all inclination for food, sleeps badly at night, and is confined to the bed or house.

First, then, you have the mucous membrane of the eyes, nose and throat affected, then the larynx and trachea, then the larger bronchi, and finally the smaller and more minute ramifications. When the latter state has continued for some time, more or less serious engorgement of the lung takes place, and

this adds to the dyspnoea and cough. On applying the stethoscope over the lungs, you will hear at various parts a moist crepitus, indicating the existence of serous infiltration. The smaller bronchial tubes and air vesicles are congested and filled with mucus; the blood cannot pass freely through the lung, and consequently must be imperfectly aerated; the secreting and absorbing functions of the lung are deranged; and hence arises a state in which the pulmonary capillaries become congested, and permit the more fluid part of the blood to exude into the parenchyma of the lung, giving rise to what is termed serous infiltration.

Something similar to this occurs also in bronchitis, particularly in fever, but we very seldom have hepatisation resulting from such causes. In hepatisation the capillaries pour out, not serum, but lymph, which glues together the cells of the pulmonary tissue, and forms a dense solid mass. Hence in influenza or bronchitis you seldom have true pneumonic inflammation. You will have extensive and dangerous engorgement, but when you examine the lung after death, you do not find any real solidification, and you can restore the lung almost to its original permeability and buoyancy by squeezing out the infiltrated fluid. Yet I must admit that this is not always the case, and that in influenza, as well as in bronchitis, you may have true pneumonia superadded to the original affection of the lining membrane. This occurred in the case of a lady whom I attended in Capel-street, and who was attacked with influenza shortly before delivery. On the day of her accouchement pneumonia was superadded to the bronchial inflammation, and she died with extensive hepatisation of the right lung. This also occurred in the case of a man of middle age, residing in Suffolk-street, who had been labouring for some days under excessive engorgement of the lung. I have also observed the same occurrence in a gentleman whom I attended with the late Mr. Colles in Exchequer-street, and in another case which I saw in Whitefriar-street.

One of the most singular features in the history of influenza is the extraordinary degree of dyspnoea witnessed in most cases where the lung is extensively engaged, but particularly where the patients had been previously subject to pulmonary affections; and even in many cases where the bronchial mucous membrane is but slightly engaged, the amount of dyspnoea is remarkably great. Indeed, it might be said with much truth that the dyspnoea was by no means proportioned to the extent of pulmonary inflammation. There was a case in the hospital of a woman labouring under influenza, whose chest sounded clear on percussion, and in whom every part of the lung was permeable, who presented nothing more than a few sonorous rales in the course of the larger bronchial tubes, and yet she was suffering from considerable dyspnoea, and the respirations amounted to forty-six in a minute. We cannot, therefore, attribute the difficulty of breathing to mere bronchitic lesion, for it was not in proportion to this lesion. Another patient admitted into Sir P. Dun's Hospital exhibited a similar train of symptoms. He was a negro sailor, a native of New Brunswick, and was seized with the epidemic a few days after his ship arrived in Dublin; he was a man of Herculean form and finely developed chest, and in the prime of life. His suffering from dyspnoea was intense; his chest heaved, he tossed about in bed in a constant state of agitation and restlessness, and yet the respiratory murmur was every where distinctly audible through the lung, and no rale could be heard, except here and there a few bronchitic wheezings. He also laboured under insomnia, and, though he had but little fever, debility was extreme. Indeed his pulse was so weak from the commencement, that I

could not venture to treat him antiphlogistically ; and I accordingly ordered extensive vesication over the chest, with the use of wine, stimulants, and narcotics. This man subsequently recovered—an event which could scarcely have occurred under the plan of treatment adopted, had his dyspnœa depended on mere bronchitis.

It should be also borne in mind that, in many bad cases of influenza, the dyspnœa is intermittent, or at least undergoes remarkable exacerbations and remissions at certain hours of the day and night. It would appear that the respiratory derangement depends on the same general cause which produces the whole train of symptoms, and that it might exist even where there was no bronchial inflammation at all. It is true that, where the bronchitis is present, it adds to the distress of respiration, but the dyspnœa appears to be chiefly attributable to some impression made on the vital activity of the lung. That the lungs are endowed with an inherent vitality necessary to the aeration of the blood has been long acknowledged by the Germans, who have described a dyspnœa from paralysis of the lungs ; and this opinion is now generally adopted in Great Britain since the results of the experiments on the eighth pair of nerves have been duly appreciated. We have abundant illustrations of this truth in asthma, in which the greatest dyspnœa is often present, without any appreciable lesion of the lung. And it would be a fortunate circumstance for the patients in influenza if this were not the case ; for we could then treat the affection of the lung as ordinary bronchitis, and should expect to find it amenable to the ordinary remedies.

You are aware that the mortality in cases of ordinary bronchitis is extremely small, if we except very young children and persons advanced in life. In adults, when met by prompt and appropriate treatment, it is generally a very manageable disease, and seldom proves fatal, unless combined with other unfavourable conditions. This, however, is not the case in influenza, nor is the pulmonary affection so easily treated, or the dyspnœa so readily controlled. I saw, some time ago, a fine young woman, servant to a gentleman in Fitzwilliam-street, for whom every thing had been done which the best and most skilful practice could devise ; but her condition when I saw her was desperate, and she died the following day ; yet her chest sounded well on percussion, and we could hear nothing over the whole lung, except a few sonorous and sibilous rales, and the respiratory murmur seemed every where nearly as loud as natural. Of course, such a lesion of the nervous influence could not last long without necessarily inducing pulmonary congestion—an inevitable consequence of imperfect aeration of the blood. When the eighth pair of nerves is divided, the animal is slowly suffocated ; and, on dissection, the lungs are found engorged, and the bronchial mucous membrane congested and inflamed. May not the affection of these parts in influenza be sometimes induced by lesions of nervous power in the lungs ?

To the late Dr. George Green, Professor of the practice of Physic to the College of Physicians, I am indebted for the following results of his very numerous post-mortem examinations in this disease ; and I feel great pleasure in being able to give them, as such examinations, at least in this country, are very rare :—

“The cases which proved fatal at the House of Industry during the late epidemic influenza (1837), occurred principally among the aged inmates of both sexes. I had an opportunity of examining several of these cases, and the following were the principal post-mortem appearances observed.

“The bronchial mucous membrane was found in every case more or less

congested and inflamed. The colour varied considerably, being in some of a dull red, and in others of a much darker hue. The inflammation, in most cases, was found to occupy both the trachea and the bronchial tubes of both lungs; in other instances, it was confined to one lung alone. A sanguinolent frothy mucus occupied the area of the tubes, and increased in quantity as they were traced to their minuter divisions. The parenchymatous tissue of the lung was invariably discoloured, being generally of a dark or violet colour; its specific gravity was increased, and it did not crepitate, or at least very feebly, when pressed between the fingers. The surface of its section was not rough to the touch, and when pressed in the hand, a quantity of the mucus described above was driven out. In some cases, the postero-inferior portions of one or both lungs were very dark coloured, and the finger could be passed easily through the substance. When the surface thus torn was examined, it did not appear to be granular; it resembled more a portion of gangrenous lung, except that there was an absence of fœtor. This last appearance was found principally in very aged persons. It was rare to find any traces of the second and third stages of ordinary pneumonia in these patients; but in the young and robust, who were received into the Hardwicke Fever Hospital from the neighbouring streets, these degenerations of the structure of the lung were observed, together with the same inflammation of the bronchial mucous membrane.

"In most of the aged patients, the blood was found dark coloured and fluid in both cavities of the heart, and in every vessel where it was examined. The cases in which fibrinous concretions in the cavities of the heart were found were very few, and these invariably in the young or middle aged. In the former class of patients, also, the lung occasionally appeared to be œdematous; and in one or two cases, a considerable effusion of serum had taken place into the pleural cavities. The signs of recent pleuritis were very rare, but old adhesions, as might be expected in such subjects, were very commonly found between the pulmonary and costal pleure. In one case of a lunatic, who survived the immediate attack of influenza, tubercles appeared to have been rapidly developed in both lungs. In another lunatic, two tubercular cavities were found, in addition to the state of the lung and air-tubes already adverted to.

"With respect to the nature and duration of the symptoms of those cases which came under my own management, I have little to say in addition to what is already so familiarly known. The physical signs afforded by percussion and auscultation were almost universally as follows:—Dulness, more or less decidedly marked, in the postero-inferior portions of the lungs; sonorous or some form of bronchial rale throughout the chest, or, what was more common, a mixed sonorous and crepitating rale, or in the latter stages, a mucocrepitating rale. The sputa were seldom rust-coloured or tenacious, but rather resembled those of bronchitis. In many cases, the want of power to excrete them appeared to be the immediate cause of death; but in others, the morbid cause, whatever it might be, appeared to have affected the entire respiratory and circulating systems, producing great congestion of the venous system, and a state not unlike asphyxia. The latter cases were almost all among the aged inmates of the House of Industry.

"The appearances of the other viscera were not such as could in any way account for the result, so often speedily fatal; so that, so far as one could hazard a conjecture, the morbid cause appeared to have made its primary impression on the respiratory mucous surface, thereby interfering with the proper

aeration of the blood, and inducing the changes in that fluid and in the structure of the lungs above detailed."

Such were the appearances observed by Dr. Greene in numerous dissections of persons who died of influenza. They may be relied on as perfectly accurate, for no one was better acquainted with pathological phenomena than Dr. Greene, and consequently no one better able to furnish valuable evidence with respect to the appreciable changes produced by influenza in the pulmonary and other tissues.

I have already advanced the opinion, that we should not hastily assume that influenza consists essentially in the morbid changes which dissection reveals; we should examine every side of the question, and consider whether it is not possible that the alterations in the pulmonary tissue may not be, to some extent at least, the consequences of the disease. Let us consider for a moment the method we pursue in reasoning about the progress and causes of the symptoms in ordinary bronchitis. Here a patient is seized with a pectoral affection, attended with cough, dyspnoea, and more or less fever. We find certain rales, and the expectoration is altered in quality and quantity. Further, observing a number of such cases, we remark that the danger is proportioned to the degree of dyspnoea, and the dyspnoea to the extent and nature of the rales, together with the quantity and quality of the expectoration. To these the general constitutional affection, and the probable results of the disease, have certain definite relations, a knowledge of which is soon obtained by experience.

But these rales, and this state of the respiration and expectoration, we have reason to believe, arise from the presence of bronchial inflammation; and to this we refer all the symptoms observed. On this supposition, too, we proceed in our treatment, and the result most commonly justifies its correctness; and we have additional evidence of its truth furnished by post-mortem examinations. Now, in such instances, the chain of inductive evidence is complete, and we feel a conviction that our practice is founded on correct notions of the nature of the disease. But how different is the case when we assume that influenza is caused by bronchial inflammation! In influenza the dyspnoea is not always proportioned to the bronchitic affection—nay, in some cases we have seen that difficulty of breathing was most urgent in cases where the air entered into all parts of the lung with facility, and where few and unimportant rales existed. Again, although the presence of a copious viscid secretion in the bronchial tubes was sure to aggravate dyspnoea, yet it often occurred in patients whose air-passages were very little, or not at all obstructed in this way. The effects, too, of remedies, antiphlogistic, expectorant, and derivative, were very different from what they would have been had the disease depended on a mere bronchitis. I have already stated my conviction, that the poison which produced influenza acted on the nervous system in general, and on the pulmonary nerves in particular, in such a way as to produce symptoms of bronchial irritation and dyspnoea, to which bronchial congestion and inflammation were often superadded.

In this view of the subject I am not singular, for I find that it has been advocated by Dr. Peyton Blakiston, in a short treatise on influenza as it occurred at Birmingham. He states that his researches have led him to the conclusion "that influenza is an affection of the nervous system, with its concomitant derangements in the organs of digestion, circulation, &c., commonly known under the name of nervous fever, accompanied throughout its

whole course by irritation of the pulmonary mucous membrane, which not unfrequently amounts to congestion, and even to inflammation."

This distinction between influenza and feverish cold with bronchitis is, in a practical point of view, of great importance, and should never be lost sight of in the treatment of influenza, for it prevents us from placing our sole confidence in remedies adapted to mere bronchitic inflammation. Thus, Dr. Blakiston asserts, and most physicians will agree with him in this point at least, that it was often necessary to have recourse to diffusible stimulants at the commencement, and to administer tonic medicines in an early stage of the disease.

In some cases, even when dyspnoea exists, the cough is hard and dry, and the expectoration scanty; in others the expectoration is copious, so as to cause constant efforts to cough it up; and, indeed, it is melancholy to look at the distress which patients suffer in this respect. You will hear the wheezing of the phlegm in the throat and air-passages before you enter the room, and you will see the patient exhausted by successive paroxysms of cough, and ineffectual attempts to expectorate. In other cases, where the vitality of the lung is less injured, and the general tone of the system less deranged, the sputa, although copious, are expectorated with considerable facility.

The sputa bear considerable analogy to those observed in ordinary bronchitis. They consist at first of a greyish mucus; as the disease proceeds, they exhibit a globular appearance, or assume a puriform character, and do not coalesce. In other cases they are extremely viscid and ropy, like solutions of gum or isinglass. A remarkable fact with respect to the sputa in influenza is that they are very seldom mixed with air-bubbles. On mentioning this to some persons attending my class, I was shown some sputa discharged by a patient labouring under influenza, in which there were some air-bubbles; this, however, is extremely rare. In a lecture which I delivered some time ago, I took occasion to allude to the secretions of the bronchial mucous membrane, and stated my conviction that this subject had not received as yet the attention which its acknowledged importance demands. There is one point in particular, of which no adequate explanation has as yet been given—namely, why it is that in some cases of pulmonary inflammation the sputa are filled with air-bubbles, while in other instances there is no appearance of air-bubbles from the beginning to the end of the disease?

The presence of air-bubbles in the sputa has been explained by supposing that air becomes incorporated with the mucus, while it is driven up and down in the bronchial tubes during the acts of respiration and coughing; just as if you shake a solution of soap or any other viscid fluid in a half-empty bottle, it becomes impregnated with air bubbles. There may be some truth in this, but I think it does not sufficiently explain the presence and intimate incorporation of air with the sputa in certain affections of the lung; and it appears to me that we can scarcely understand this, unless we suppose that the air and mucus are secreted together. You are aware that air is secreted by the bronchial mucous membrane, and that in some cases this secretion is morbidly increased, in others morbidly diminished. Now, it is not very unreasonable to suppose that the mucous membrane may secrete air and mucus together in abnormal quantity; and that this, rather than any mechanical agitation, may be the cause of the intimate combination of air with the expectorated fluids.

I need scarcely make any observations on the cough in influenza. It is in general very troublesome, particularly at night. Many persons are not much annoyed by it during the day, but at night it becomes very harassing, and

prevents them from sleeping. When severe, it continues both night and day ; and even when persons have recovered from the fever and dyspnœa, and are able to go about, the cough will continue extremely troublesome : this I have observed in the majority of cases. In this state medicines prove of very little service, and one of the best remedies is to change to a mild country air. Cases of cough, in which I have tried every remedy without success, and which had resisted every form of treatment in the city, yielded in a few days to the salubrious influence of change of air.

In influenza the urine is generally much loaded with lithates, and contains a large quantity of uro-crethrine or purpurine. It is red when voided, deposits a good deal of sediment, and tinges the vessel in which it lies with a pink film. It bears some resemblance to the urine which accompanies arthritic and gouty affections. In very bad cases, this state of the urine continues up to the period of death. You recollect what I stated with regard to the condition of the blood ; it is generally buffed, even where there is scarcely any febrile excitement in the system, and thus affords a very fallacious indication. The same observation holds good with respect to the state of urine and temperature of the skin. I may observe here that the heat of the skin is very variable ; it is sometimes very high, sometimes natural : in fact, like the pulse, it falls and rises in a very remarkable manner, at certain times in the day.

I have already spoken of the affection of the mucous membrane of the bowels. I may observe that in some cases of influenza the morbid influence is translated to the brain, and symptoms of delirium or coma supervene. Thus, in two instances that have been communicated to me, the patients fell into a state resembling coma during the course of the disease. In three cases witnessed by the late Mr. Swift, the attack of influenza terminated in a train of symptoms bearing a close analogy to delirium tremens, and requiring the use of blisters to the head and nape of the neck, full doses of opium, purgative enemata, wine, and the occasional use of mercurials. The patients complained of great headache, noise in the ears, intolerance of light, and more or less sleeplessness from the commencement, along with the usual pulmonary symptoms. After five or six days, they became excessively nervous, lost all sleep, had continued subsultus and tremors, and talked very incoherently, particularly at night. During the prevalence of the cerebral symptoms, the pulmonary affection partially or wholly disappeared, but returned again in some degree after the subsidence of the delirium. All these cases terminated favourably.

I believe I have already remarked that many persons who have laboured under very severe pulmonary symptoms will struggle through the disease ; and I may mention here, that I have seen persons recover who have suffered from continued orthopnœa for three weeks. Still the mortality, particularly among the aged, is very great ; and I fear that we shall shortly have but few octogenarians to tell the occurrences of the last century. Indeed, the mortality has not been confined exclusively to the aged, for many persons in the vigour of life have sunk under the attack. There have been several deaths among the soldiers in our garrisons, notwithstanding the excellent state of health which our troops enjoy, and the skilful and judicious treatment of our present army surgeons.

In many individuals influenza has laid the foundation of other and very serious diseases, and this I especially witnessed in the epidemic of 1847. In some, the diseases so produced could be traced to the depressing effect on the nervous system. Thus, Dr. Mulock informs me that in three cases which he

attended, relapse from exposure to cold terminated in insanity, which in one of the cases ended fatally.

It now remains for me to say a few words concerning treatment. First, as to bleeding. A great deal was expected from general bleeding, because the disease was sudden and violent in its onset, and accompanied by symptoms which seemed to require active measures—such as an inflammatory state of the bronchial mucous membrane, accompanied by quick pulse, hot skin, and high-coloured urine. This led persons to expect much benefit from venesection. The results, however, of its employment are, generally speaking, unsatisfactory. Where venesection was employed promptly and in the beginning of the disease, and where it seemed to be strongly indicated by the buffed and cupped state of the blood, even in such cases it has failed to afford any thing like material or permanent benefit, or to produce a decided amelioration of the existing symptoms. The general impression among practitioners in Dublin seems to be, that bleeding is doubtful in its effects, if not altogether improper. I am much inclined to think that bleeding, unless employed within the first twelve or twenty-four hours, will be likely to do as much, or more, harm than good. Bleeding on the second or third day, except to relieve congestion of the lungs, seems inadmissible. The same observation holds good with reference to other diseases. Thus, in scarlatina, if you happen to be called when the rigor commences, and while the disease is beginning to form, you will sometimes accomplish much good by bleeding your patient; but after eighteen or twenty-four hours, when the disease is fully formed, venesection will not do. On this point I can speak from experience. In scarlatina, the difference of a few hours renders venesection inapplicable, and even injurious. It is the same thing with respect to influenza; general bleeding is useful only in the commencement; and where the symptoms seem to demand it, it should be employed at least within the first twenty-four hours.

Where I have been fortunate enough to find the disease just commencing, I bleed to the amount of twelve or fourteen ounces, order the patient to remain in bed and take some aperient, followed by the use of nitre. In this way, by timely bleeding, aperients, sudorifics, and confinement to bed, the attack generally passes over in two or three days. I could mention many instances of the success of this plan of treatment. In one family I treated all the individuals attacked in this way, and I have done the same thing in many cases of persons somewhat advanced in life. In the case of an old gentleman who was very severely attacked, I succeeded by these means in checking the disease at once. My experience, therefore, is, that bleeding is of service in the very commencement of the disease; but as it seldom happens that a physician is called in at this period, I would qualify my statement by saying that, as a general measure, bleeding in influenza is seldom admissible.

When you are called on to attend cases, you will most generally find that the patients have been ill for two or three days or more; and then the only mode of abstracting blood, which you can have recourse to with safety, is by leeching. About eight or ten leeches applied over the hollow of the neck, just above the sternum, and allowed to bleed pretty freely, will prove very serviceable; and if you apply them in the evening, you will often secure to your patient a good night's rest. This plan of leeching in the hollow of the neck, in cases of tracheo-bronchial inflammation, is an excellent one: the leeches are applied at a spot which lies close to the trachea, and particularly to that point to which the irritation accompanying bronchitic affections is chiefly referred.

By the aid of leeching, the use of aperients if necessary, and confinement

to bed, with sudorifics, you will frequently succeed in removing the fever and bronchial inflammation. You will derive much benefit, particularly in the early stage of influenza, from tartar emetic and nitre; but I must say that neither leeching nor tartar emetic and nitre proves as valuable and as efficacious in influenza as in ordinary bronchitis. Some of my friends, who use tartar emetic as a nauseant in the commencement of the disease, inform me that they have derived benefit from its use; and others have told me that they have used tartar emetic and opium, in the commencement and during the course of the disease, with advantage. I have not employed the first of these, but I have the latter, and with favourable results. You may therefore, after using antiphlogistics for a day or two, proceed to the use of opiates in combination with tartar emetic or nitre. In some cases the camphorated tincture of opium will answer very well; in others, you will find the acetate or muriate of morphia better. A mixture, composed of six ounces of almond emulsion, a drachm of nitre, and half a drachm or more of the liquor muriatis morphiæ, will be found very useful. The muriate of morphia, which possesses many of the valuable properties of opium without its defects, will serve to tranquillize the system and produce sleep—two most important points in a disease like influenza, connected with increased nervous irritability.

A gentleman on whom I place much reliance tells me that he has treated many bad cases successfully with camphor mixture, tincture of opium, and tartar emetic. I need not mention the various remedies which have been recommended in this disease—as Mindererus's spirit, Hoffman's anodyne, ipecacuanha alone or combined with extract of conium and blue pill, and many other remedies belonging to the class of diaphoretics or expectorants. They are all more or less serviceable, but they have all the common defect of producing less relief than they usually do in cases where the pulmonary affection is simple and idiopathic. Towards the end of the disease you find it necessary to give stimulating expectorants and light tonics—as infusion of polygala senega, infusion of columba, &c.

One word about blisters before I conclude. They are useful in some cases, but in many of the severe ones they do little or no good, and only add to the patient's sufferings. They do not relieve the pulmonary symptoms, and particularly the dyspnoea, in the manner you would be prepared to expect. I do not know a more remarkable circumstance in the present disease, than the failure of blisters; and in many cases I do not employ them at all. Fomenting the trachea and chest with very hot water appears to be much more serviceable. This has proved extremely valuable in many cases of this as well as other affections of the air passages.

LECTURE XXX.

THE CONNEXION BETWEEN DISEASES OF DIFFERENT ORGANS.

IN order to acquire a correct and available knowledge of human pathology, and to extend the range and confirm the accuracy of diagnosis, it is of the utmost importance to observe attentively the connexion between the diseases of certain organs or systems of the body. You are aware that some organs, when labouring under disease, are apt, after the disease has continued some time, to implicate other organs, giving rise to various deranged conditions, which are developed, sometimes simultaneously, but in general consecutively, and in sequence. I have already pointed out several diseased actions thus associated together, each forming a link in the morbid chain. Now it is of the greatest importance to study each link, and ascertain the nature of its connexion, so as to have a distinct conception of the whole.

Let me first direct your attention to a train of morbid phenomena sometimes observed co-existing with arthritic inflammation. A person labouring under inflammation of the joints gets an attack of hepatitis, accompanied by jaundice, and this is followed by urticaria. I have observed this sequence of disease in eight or nine cases. The first was in a gentleman residing in Lower Mount-street, whom I attended with Dr. Cheyne. This gentleman, in consequence of exposure to cold, was attacked with arthritic inflammation and fever. After he had been about ten days ill, he became suddenly jaundiced, and in a day or two afterwards a copious eruption of urticaria appeared over his body and limbs. Exactly the same train of phenomena, and in a similar order of succession, was observed in a man treated in the Meath Hospital in 1832. A short time before this, I had been attending a medical friend in Baggot-street who had been affected in the same way; and I mentioned to the class, as soon as I perceived the man was jaundiced, that he would most probably get urticaria. I made a similar prediction in a case which occurred recently in our wards, and it was verified by the event. Now this is not a mere fortuitous occurrence; the various symptoms must be connected in the relation of cause and effect. It is interesting to bear this in mind, and it is besides of considerable importance to the practising physician; it enables him to predict the appearance and form of disease, and inspires his patient with confidence in his opinions and judgment.

Since my attention has been drawn to the connexion between these three diseases, I have seen and heard of several other instances in which they appeared thus associated together. A circumstance so remarkable deserves to be studied with more than ordinary interest. Let us, therefore, consider what facts are supplied by physiology and pathology capable of throwing some light upon this hitherto unobserved and uncultivated subject. In the first place, nothing has been longer recognised by physicians, as an established fact, than the intimate sympathy which exists, both in health and disease, between the digestive organs and the skin. Now, acute hepatitis always produces more

or less derangement of the stomach and alimentary canal, and we may therefore consider its connexion with urticaria in the same way that we are in the habit of viewing the cases, so frequently observed, in which certain sorts of fish have produced serious symptoms of indigestion followed by nettle rash. The association between these two diseases is rendered more remarkable by the fact, that when fish taken as food exerts a poisonous effect on the system, it frequently produces not merely violent stomach and bowel complaint, but also inflammation of the joints and rheumatic pains. If I can establish this, you will allow that the connexion between arthritis, disease of the digestive organs, and urticaria can no longer be considered as fortuitous, and depending on the accidental concurrence of causes having no determinate relation; but must be looked on as owing to and arising from the operation of some fixed law, which regulates and originates this development of morbid actions in, if not a frequent, at least an uniform mode of succession.

The Otaheitan eel (puhhe pirre rowte) produces, when eaten, a most copious scarlet eruption of the skin—most probably urticaria—and occasions *sudden tumefaction of the abdomen*, together with swelling of the extremities, hands and feet; the pain felt in the limbs is so excruciating that the patient becomes quite frantic. I may remark here, that this and many other species of fish which act as poisons on the system, give rise very speedily to paralysis of the extremities. You will find in the *Edinburgh Medical and Surgical Journal*, vol. iv. p. 396, in an excellent review of Dr. Chisholm's work on the poison of fish, an account of the effects produced by eating the *Muraena conger*, the following passage: "In the course of the following night they were all seized with violent griping and cholera, together with a peculiar sensation of the lower extremities, attended with violent convulsive twitches, and faintings. They all perceived a brassy taste in the mouth, and a rawness of the oesophagus, as if it had been excoriated. These symptoms continued to afflict the negroes for a fortnight, and *then terminated in paralysis of the lower extremities*. After suffering for several months, they recovered with difficulty."

Werlhoff, as cited by my friend Dr. Autenrieth in a book* of extraordinary ability and research, gave a case where the *Gadus aeglefinus asellus* produced a violent affection of the stomach and bowels, together with urticaria. Urticaria, diarrhoea, dysentery, paraplegia, are said, by the same author, to be frequently observed in consequence of eating the flesh of the *gray snapper*. Foster relates a similar train of accidents produced by eating the *Sparus pargus* (porgee). In short, I could bring forward citation after citation in proof of the truth above advanced; but I have done, for enough has been already said to establish the point in question.

Having established the fact that disease of the digestive organs is often intimately associated with urticaria, it remains to prove that a similar connexion exists between hepatitis—the cause of the derangement in the digestive organs in the case before us, and arthritis. Every one has observed how frequently inflammation of the joints becomes in its course complicated with inflammatory affections of internal viscera. In general those viscera whose component tissues are most similar to the articular are the organs affected. Hence the heart and pericardium are so often attacked in the course of rheumatic fevers. It sometimes happens, however, although less frequently, that the internal organ attacked has little analogy in point of tissue with the joints. Thus, in rheumatism and in gout, the stomach, the

* *Ueber das Gift der Fische*: Tübingen, 1833.

bowels, the lungs, or the liver may become engaged; and of these none, perhaps, so frequently as the liver. We need not be surprised at this, when we consider how intimately the digestive function is connected with arthritic inflammation, which is indeed generally preceded or accompanied by well-marked symptoms of hepatic and stomach complaints. Indeed almost all medicines that afford relief in arthritis are attended with well-marked symptoms of their having acted upon the secretions of the alimentary canal and liver. Thus colchicum seldom diminishes the pain and inflammation of the joints, until it produces copious bilious evacuations.

There is another sequence of disease, not unfrequently observed, but of which the connexion has not been hitherto noticed by any writer, as far as I can ascertain. About two years since I was consulted by an English gentleman, who had been ill for a considerable time. The history of his case from the commencement was this:—Three years previously he had venereal—used and abused mercury, was exposed to cold, and got periostitis. He now got into a bad state of health, used mercury a second time, obtained some relief, and then relapsed again; finally, after having used mercury three or four times, he was attacked with mercurial cachexy, became weak and emaciated; the periostitis degenerated into ostitis, producing superficial caries and nodes of a bad character; he had exfoliation of the bones of the cranium and rupia, and was reduced to a most miserable state. Under my care the symptoms gradually disappeared; he recovered to all appearance, and even got fat. He then caught cold, and relapsed again. At last his liver became engaged; he was attacked again with hypertrophy of the liver, ascites, and jaundice, and died soon afterwards.

Here, then, we have venereal, abuse of mercury, periostitic inflammation, abuse of mercury followed by exacerbation of the periostitis and establishment of mercurial cachexy; and the history of the case is wound up with hypertrophy of the liver. This was the first case in which I had observed this concatenation of diseases; since that period I have seen a similar train of morbid phenomena twice in private practice and once in hospital. First, we have abuse of mercury, then periostitic inflammation and mercurial cachexy, and the scene is closed by morbid enlargement of the liver. Now I do not look upon this sequence as merely fortuitous. The diseased actions are, I think, related as cause and effect, and each successive condition is consequent on the previous one.

It may not be amiss to mention here some curious circumstances observed in the case to which I have just alluded. While this gentleman's liver was enlarging, there was no tenderness of the right hypochondrium on pressure. I have observed the same absence of tenderness in all the cases of this description I have witnessed. The gentleman could bear pressure over the hepatic region without any inconvenience, and yet the liver was so enormously increased in size, that its inferior margin extended almost down to the pelvis. What is equally remarkable, he had no fever, and the tongue was perfectly clean and moist during the whole course of the hepatic affection. In my observations on a case in the fever ward, I remarked a few days since that some persons were too hasty in drawing inferences from the state of the tongue as to the existence of affections of the digestive organs. I shall not touch on this point, however, at present, and shall merely observe that this gentleman's tongue was perfectly clean and moist, notwithstanding the morbid condition and rapid growth of the liver. Another curious circumstance was that during the hepatic affection digestion appeared to go on very well, at least so far as

the formation and due expulsion of fæces are concerned. The alvine evacuations were regular, and the matter discharged presented the form and consistence of that which is passed by a person in good health. But there was a peculiarity in it to which my attention was first directed by the patient, who was an intelligent and observant person. The cylinder of fæcal matter was composed of parts differing in colour and appearance : two or three inches consisted of pale clay-coloured substance ; and immediately after this another portion, of about the same length, was observed, presenting the ordinary bilious or brown colour of natural excrement ; and then again another mass of clay-coloured matter, without any obvious trace of bile. This appearance I have now frequently witnessed ; and the inference to be drawn from it is this,—that in such forms of hepatic disease the functions of the liver are performed, as it were, intermittently ; it secretes bile during a certain period of the digestive process, then stops, and then secretes again.

This peculiarity is noticed in many diseases of the liver ; and it is important to remark, in attempting to explain the *rationale* of these hepatic affections, that in no disease of the liver is this symptom more frequently observed than in the scrofulous. Scrofulous disease of the liver is that state in which there is an increase of size in the organ, with induration and imperfect secretion, but without any remarkable tenderness. This condition in children is accompanied by irritability of the digestive organs, fretfulness, emaciation, loss of sleep, and impaired nutrition. The little patient becomes what is termed “pot-bellied,” and labours under thirst, debility, and febrile excitement. This has been frequently called remittent fever, and disease of the mesenteric glands, but in my opinion unjustly. It is only a form of general cachexy connected with the scrofulous diathesis, affecting secretion and nutrition in general, and the digestive and biliary systems in particular. It would be quite wrong to imagine that in this form of disease the liver is the cause of the whole train of morbid phenomena ; it is merely affected in common with other organs, and forms only an individual feature in the group of symptoms.

Now, in this form of scrofulous cachexy, where you have diarrhoea, emaciation, fever, thirst, and restlessness, the liver is frequently affected in the manner already described ; and in the loose stools of such a child you will find one part bilious, another part clay-coloured ; they will be yellow this day, and pale the next, accordingly as the liver secretes bile or suspends its functions. But in this instance, I repeat that the liver is only one of many organs affected by the same general cachexy. Could we ascertain the derangements of other secreting organs with the same facility, it is very probable we should find similar evidences of the morbid influence which pervades the whole system.

This view of the question shows that you are not to expect to succeed in removing the disease by the use of calomel or any other mercurial preparation. Many of those persons whose practice is little better than routine, when called to treat a case of this description, first examine or inquire as to the nature of the alvine evacuations, and fixing on the single symptom of deficiency of bile, immediately prescribe calomel to be repeated or continued until the secretion of the liver is established ; but they forget that this state of the biliary system depends on the general state of health, and that the absence of the bile is the consequence and not the cause of the disease. Almost all the organs of the body are affected ; and though calomel may restore the secretion of the liver for a time, it cannot bring back the organ to its natural state, or cure the disease. The malady is to be remedied in a

different way : the secretions (and that of the liver among the rest) are to be improved by change of air, by an appropriate diet, by exercise, tepid or cold bathing, and the use of those remedies which are adapted to modify or correct that state of the system on which the general derangement depends.

An observation of such cases has led me to a train of reflection respecting the occurrence of the same order of symptoms in persons who have been injured by the abuse of mercury. Many persons who get venereal employ mercury injudiciously, and fall into what has been termed mercurial cachexy, in which there is a general unhealthy state of the organs. A patient who has fallen into this state very closely resembles a scrofulous person, and is apt to labour under the same emaciation, impaired nutrition, irritability, feverishness, and the same sort of cutaneous, glandular, and periostitic affections. The chronic mercurial cachexy is very like the scrofulous, and attacks very nearly the same organs and tissues. Hence the difficulty of curing affections of the liver and other organs when they are the result of this depraved habit. This is the key to the explanation of those horrible ravages which we frequently witness in cases of venereal disease complicated with mercurial cachexy—a state of constitution which is closely allied to the scrofulous. You will frequently meet with this consecutive affection of the liver in cases of morbus coxæ, where the patient has been labouring for years under ulceration of the joint. The growth of the rest of the body appears checked, the patient is stunted and emaciated, while the liver increases rapidly in size. It was from observing the occurrence of liver disease in persons labouring under the scrofulous cachexy, that my attention was first turned to its occurrence in persons broken down by long or injudicious courses of mercury.

One word, gentlemen, as to the curability of hepatic affections of this kind. I believe that it is always an unpromising form of disease ; but persons of originally good constitution, and under the age of thirty, will generally escape if treated judiciously, and with proper care and attention. Some months ago I attended, with Sir Henry Marsh, a young gentleman labouring under this affection as a consequence of the abuse of mercury. We found him greatly emaciated, and labouring under considerable enlargement of the liver, with commencing ascites. He had also great determination of blood to the abdomen, diarrhoea, and hemorrhoids. By strict attention to his bowels, a well-regulated diet, change of air, and the use of taraxacum, conium, and hydriodate of potash, he was ultimately cured after an illness of nearly two years, during which the liver had grown to an enormous size. I may state that he is at present in good health, and that the liver is nearly reduced to its natural dimensions ; this gentleman's age is about four-and-twenty.

I observed one circumstance in the progress of this case which is worth noting. He was suddenly attacked with a papular form of purpura, accompanied by much tingling and itchiness, and answering to the description given of *Purpura urticans*. This peculiar eruption was very troublesome at night, and formed several successive crops which altogether lasted a month. It occupied the extremities upper and lower, and was very abundant on the latter. The gentleman wore a bandage to relieve a varicose state of the veins of the left leg. Now the eruption never appeared in the parts subjected to the pressure of the bandage, although it was very thick immediately below and above these parts.

I may observe that it is entirely as the result of the cachectic habit, this enlargement of the liver which I have now been speaking of is observed. I

have assumed this principle as the basis of my argument, and I think it is founded in fact and truth. It is also curious to observe that the same cachetic state which gives rise to emaciation and decay of the body generally occasions hypertrophy of some particular organ. What we most commonly observe in such conditions is general wasting of the system, accompanied by increased morbid nutrition in certain organs. This appears to be the general law. You perceive that in the explanation I have given, I have supposed that enlarged liver is the result of a general cachetic state of the system, and it is of importance to recollect that this state may be brought on by the injudicious exhibition of mercury, or by carrying mercurialization farther than the constitution will bear. In this instance we are compelled to allow that our practice may furnish weapons to be turned against us by the disciples of homeopathy. It cannot, however, be denied that the immoderate use of mercury has been productive of liver disease. The late Mr. Hewson pointed out this to the attention of those who visited the Lock Hospital while under his care. At this period it was the custom to salivate every patient, and keep him under the full mercurial influence for a month or two; and it frequently happened that, just as the mercurial course was finished, the patient got disease and enlargement of the liver. Were I inclined to theorise, I might perhaps offer some fanciful hypothesis in explanation of this occurrence, and might trace some connexion between the stimulant effects of mercury on the liver, and the subsequent hypertrophy. I shall, however, content myself at present with noticing the fact, and leave the explanation to my juniors, who always explain matters, according to my observation, much more readily than their seniors.

There are also other diseased states of the system in which we have enlargement and morbid alteration of the liver. I can point out to you four different states of the system in which hypertrophy and disease of the liver form one of the results of the general affection of the system. The next of these to which I shall direct your attention is scarlatina. Those who have attended the wards during the past month have seen examples of this. We have observed during the past week two patients labouring under scarlatina, who got disease of the liver and jaundice. One of the patients, a little boy, was attacked with the disease in an extremely violent form, accompanied by high fever and a very remarkable eruption. In a few hours after the exanthema appeared the entire cutaneous surface was dyed of a brilliant red; in fact, the skin looked as if it had been painted over, and there was not a single spot free. In cases of this kind the violence of the cutaneous inflammation is sufficient to kill, without any other unfavourable complication; and the patient seldom lives more than three or four days. You observed in this case the whole epidermis peeled off. But what I wish to direct your attention to is, that this boy after two days had evident symptoms of disease and enlargement of the liver. A young man in the same ward had also an attack of scarlatina, but in a milder form. On the third day he likewise got inflammation of the liver, but was cured by general and local antiphlogistic treatment.

In a previous lecture I have explained to you that scarlatina is one of those diseases in which a train of unfavourable sequelæ are apt to remain after the removal of the original complaint. Persons after recovering from the exanthematous fever will sometimes get into a bad state of health, and instead of convalescing, become restless and feverish towards evening, have an irritable jerking pulse, hot skin, derangement of the digestive organs,

diminished urinary secretion, and finally become dropsical. Now, from observing the supervention of hepatic disease in such cases, both in hospital and private practice, my attention has been directed to the liver; and I never omit making an examination of that organ when called to treat those symptoms which are looked upon as the sequelæ of scarlatina. In many of these patients I have found the liver in a state of inflammation of rather a chronic character, and without any of that remarkable pain or tenderness which characterizes acute hepatitis. But still it was inflamed, as proved by the benefit derived from local antiphlogistic means; and, moreover, its condition appeared to retard and prevent convalescence.

Not long since a friend of mine, a very intelligent practitioner, who was attending a case of this description, and had tried a variety of remedies without any benefit, was very much surprised when I drew down the bed-clothes and showed him that the liver was diseased. He had not thought of the existence of anything like hepatic affection, and was very much surprised that his treatment had proved so ineffectual. By the use of leeches to the right hypochondrium, the employment of mercury, and a proper regulation of diet, the patient was soon relieved, and the fever, thirst, and anasarca quickly disappeared. In cases of this kind the hepatic affection is the result of the general inflammatory diathesis superinduced by scarlatina. You are all aware that nothing is more common after scarlatina than inflammation of various organs. Thus some persons are attacked with pleuritis, some with pneumonia, others with inflammation of the liver. Many persons continue in a valetudinary state after the eruption had declined; they do not convalesce according to our expectations; the pulse remains rather quicker than natural; the bowels are deranged; the appetite bad; thirst urgent; and urine scanty. In many of these cases you will find that there is a species of chronic hepatitis going on, which keeps up the feverishness, and retards convalescence. This is a point of great importance, to which I am the more anxious to draw your attention, because even the latest writers on scarlatina have either entirely omitted or very insufficiently noticed it.

There is another organ whose morbid affections frequently implicate the liver; I allude here to the heart. I have already spoken of certain cachectic states, in which the liver becomes enlarged and hypertrophied as the result of the general derangement of the system. In the present case the hypertrophy and disease of the liver originate in a morbid condition of the heart; this is a very frequent cause of hepatic derangement. You have an example of it at present in the chronic ward, in the case of a poor man labouring under bronchitis of long standing, with disease of the heart, dropsy, and enlargement of the liver. In cases of this description it is a matter of some difficulty to determine in what organ the morbid sequence commences; for where many diseases coexist, it is not easy to ascertain how they are related to each other as cause and effect. I have, however, had several opportunities of observing the progress of the disease from the commencement, and the manner in which the different organs become successively implicated.

Some time ago there occurred a remarkable example of this form of hepatic affection in a relative of mine, aged 14, who, in consequence of exposure to cold, was attacked with rheumatic inflammation of the joints of a very intense character. Owing to a want of proper care, the disease was allowed to go on unchecked, and metastasis to the pericardium took place. I happened to be out of town at the time, and he had no advice or assistance for nearly twenty-four hours. Pericarditis of a violent character became

developed, and it was only by the most energetic treatment that he escaped with his life. He had pericarditis with effusion, and all the physical signs and symptoms of carditis. After the acute symptoms were removed, the signs of adhesion of the pericardium, hypertrophy, and partial valvular disease continued; and for a long time the heart's action was invariably accompanied by a loud bruit de soufflet. These affections were followed by dyspnoea and increased action of the heart. But this was not all. He next got inflammation of the testicle, and finally chronic hepatitis with enlargement. The liver grew to a very considerable size; it continued to enlarge for about seven months; and altogether he laboured under a chronic form of hepatitis for more than a year. At last the disease yielded to treatment, and he recovered completely.

This you will say was a fortunate termination; but in young persons the powers of nature often act in a very remarkable manner in remedying or removing disease, and cures are sometimes effected in such patients which it would be quite absurd to expect in persons advanced in life. After having laboured under a long train of diseases, and having continued an invalid for nearly five years, this young gentleman at last, owing to his youth and favourable constitution, surmounted all his maladies, and is at present as strong and healthy as any person I am acquainted with. In this instance the chronic hepatitis was the result of the pericarditis which formed the first link in the chain; and for the space of a year this young gentleman continued to labour under an affection of the liver, the result of disease commencing in the heart. This is a morbid sequence very frequently observed. You have pericarditis accompanied by inflammation of the lining membrane of the heart, partial disease of the valves, hypertrophy of the muscular substance, and then enlargement and induration of the liver.

This is a very common complication, and deserves your most particular attention. When you see a patient whose appearance indicates disease of the heart—who has swelling of the face, dyspnoea, lividity of the lips, and turgescence of the cutaneous vessels—in fact, that peculiar expression of countenance which at once informs the practised observer that the patient is labouring under disease of the heart, you should not neglect to inquire after the condition of the liver, for in such cases it is very frequently in a state of chronic disease. I pointed out this circumstance some time since in the case of a late surgeon, Mr. M., and directed the attention of the medical gentlemen engaged in the treatment of the case to the liver, in which no one had suspected the existence of disease. Recollect, therefore, that in many cases of disease of the heart you will also, on examination, find disease of the liver produced, as far as I can judge, in the majority of instances by disease of the heart; at least, I think I have never seen any case in which the hepatic affection had the initiative, and seemed to have brought on the organic affection of the heart. In Mr. M.'s case and several others which I had an opportunity of watching from the commencement, I have no doubt that the disease of the liver was secondary, and that the morbid sequence commenced with the heart. I am quite convinced that disease of the liver may give rise to a functional derangement of the heart; for whatever impairs secretion and deranges digestion will give rise to palpitations, tendency to syncope, and other phenomena of functional disease of the heart; but I have never seen any example of organic disease of the heart as the result of disease of the liver.

It is of some importance to be aware of this complication; for in treating

the disease of the heart you must also attend to the hepatic affection, because it has a tendency to aggravate and confirm the cardiac symptoms. This affection, however, is not to be looked upon as acute, or even subacute hepatitis. There is scarcely any pain of the side or tenderness present, and the patient is not always jaundiced ; it appears to be scarcely anything more than congestion, causing hypertrophy and chronic morbid growth. I shall not, however, speak too positively on the subject, as the difference between hypertrophy and inflammation of a low and obscure character cannot be easily determined. I am glad to find that the subject I am now discussing has been taken up by so able an observer as Dr. Bright, who, in the third number of *Guy's Hospital Reports*, p. 605, has made some excellent remarks on the influence of heart disease in producing congestion of the liver.

There is another disease in which derangement of the liver is a common symptom, and I bring it forward chiefly for the purpose of rendering the subject under discussion more complete, as it is an occurrence well known to the practitioners, and sufficiently dwelt on in medical books. I allude to that affection of the liver which is observed in cases of intermittent fever. Ague frequently produces a powerful determination to internal organs, particularly the liver and spleen, and if treated badly or unsuccessfully, is apt to bring on disease of the liver. The organ becomes congested, hypertrophied, and indurated, and presents a condition somewhat analogous to that which supervenes on disease of the heart, or results from the cachetic state of constitution produced by mercury or scrofula.

The next form of organic derangement which I shall briefly touch on is that of the spleen. It is of advantage to place cognate affections beside each other for the purpose of comparison ; by doing so we frequently derive many instructive and useful analogies. Besides, we have had a remarkable case of enlargement of the spleen in our wards at the same time we had the cases of hepatic disease to which I have alluded.

The circumstances under which enlargement of the spleen takes place differ in many points from those which determine hypertrophy of the liver. We have but few examples of inflammation of the spleen, while the cases in which enlargement and congestion of that organ take place are numerous. From the peculiarity of its anatomical structure, the spleen is very apt to become suddenly enlarged. Like the liver, it may become indurated and hypertrophied from intermittent or from some general disease affecting the system, and thus lead to a train of secondary phenomena, the most remarkable of which is dropsy. But there is one peculiar symptom attending enlargement of the spleen, which I have frequently pointed out to the attention of the class as observed at least in two-thirds of the cases, and of which we had an excellent specimen in the patient under treatment in the chronic ward.

The history of this symptom is the more curious as showing a remarkable uniformity in the phenomena of a peculiar disease at very distant periods of time. This is seen by comparing the most recent descriptions of Indian splenitis, as given in an able analysis of Voight's work on the spleen, in the *British and Foreign Medical Review*, and the description of enlargement and disease of the spleen given by Aretæus. The ancients, it is true, cannot be now considered as authorities to be followed either in pathology or practice ; for they were ignorant of many of the most important facts connected with the healthy and diseased states of the human body. In consequence of their inaccurate anatomical notions, they were unable to appreciate or describe

many of those details which now enrich the domain of pathological anatomy; their writings, however, are invaluable in many respects, as containing admirable descriptions of disease which still continue to affect the human body, and as recording certain groups of symptoms which are still associated. A comparison of their descriptions with those of modern times cannot fail to be extremely curious, and may even prove highly instructive; for if we find that certain internal affections have, from the most remote antiquity to the present period, been generally accompanied by peculiar derangements of distant parts, we are authorized in considering this connexion to be something more than accidental, and consequently we may be led to discover relations between organs generally believed to be quite unconnected with each other.

Thus, some time since I had three patients in succession under my care, who laboured under chronic enlargement of the spleen, who were all affected with a similar sort of cachexy, and had all the same affection of the skin—namely, superficial ulceration of the legs. This coincidence forcibly arrested my attention, and I was still more struck with the observation on finding that Aretæus had noticed this very circumstance in his admirable description of splenitis. “If (says he), the spleen does not suppurate, but becomes chronically enlarged, then the patients lose their appetite and become cachectic, swollen, and of an unnatural colour, while the surface of the body manifests a disposition to ulcerate, particularly on the legs: the ulcers are hollow, round, livid, sanious, and difficult to heal.” This description agrees precisely with the cases to which I have already referred, and it coincides in a very remarkable manner with the account lately given by Dr. Voight, of chronic disease of the spleen as it occurs in India. He observes that the cachexy connected with the *Splenalgia Bengalensis* frequently manifests itself by a tendency to ulceration; the disposition to which is so great, that leech-bites and blisters occasionally give rise to foul or phagedenic ulcers, which under certain circumstances, as where the patient has used mercury and is residing in a swampy district, will sometimes run on to a fatal termination. It is also curious that the predisposing causes of the different varieties of chronic enlargement of the spleen, as given by Voight, are exactly the same as those detailed by Aretæus; and both writers correspond in their statements as to the age and habits of life of persons most liable to this disease, as well as the nature of the locality and the season of the year most favourable to its production. This agreement between authors separated from each other by so many centuries, and who describe the disease as it occurred in different regions and among different races of mankind, is extremely curious, and exhibits a very remarkable example of the identity of the morbid phenomena produced by the same causes.

From the observations I have made in this lecture, you must perceive the advantage the physician gains from a knowledge of this connexion between the diseases of different organs, how much precision it adds to his practice, and what facility it gives prognosis. Additional investigations are much wanted on this subject; but based, as to prove useful they must be, on the accumulation of facts derived from experience, much difficulty lies in the way of their being undertaken.

LECTURE XXXI.

GOUT.

I SHALL in the present lecture make a few remarks on certain varieties of gout, of which I have recently seen several singular examples, premising some observations on constitutional inflammation in general.

There is no proposition in pathology better established than that there exist several constitutional affections capable of generating and modifying local inflammatory action; and that local inflammations, depending on a constitutional cause, are subject to very different laws from those which regulate the phenomena of common inflammation.

Another fact of equal importance in many points of view is, that local inflammations depending on a constitutional cause differ remarkably from each other, and in general present specific characters easily recognized. Thus, local affections arising from scrofula are not likely to be confounded with those depending on gout or rheumatism, and the inflammations produced by syphilis and other animal poisons exhibit peculiarities by which their respective origin and nature may be satisfactorily ascertained. It must, however, be admitted that, although advanced considerably in our knowledge of the phenomena of local disease depending on a constitutional cause, the subject still displays a wide field for investigation, and many points of much importance in pathology and practice require still further investigation.

Professor Cayol, in his *Leçons Orales*, has made some observations on this subject well worthy of attention. Speaking of the dependence of local disease on constitutional causes, he says, “Il faut nécessairement conclure que les dégénération organiques ne sont pas *cause*, mais effet. Et des lors, nous sommes fondés à vous dire, qu’au lieu d’user votre vie à chercher toujours quelles sont les dégénération organiques et les altérations de texture qui *produisent* les symptômes des maladies, il serait bien temps de s’inquiéter un peu de savoir ce que *produit* ces dégénération elles mêmes, en étudiant sérieusement les caractères, la marche, et la tendance des acts vitaux qui les préparent, et qui les *produisent* réellement.”

There is one fact connected with local inflammation depending on a constitutional cause not sufficiently noticed, namely, that certain affections of this kind are sometimes remarkably fugitive and transient. We are accustomed to regard the process of inflammation, whether common or specific, as one which generally lasts for some days; but it occasionally happens, that a peculiar diathesis will give rise to local affections having the characters of inflammation, and which run their course and terminate in the space of a few hours. This observation, which should be borne in mind in the investigation of diseases connected with the general habit, will serve to explain some of the anomalies which strike us occasionally in the study of constitutional maladies.

The first instance of this kind that came under my notice occurred in the case of a florid healthy-looking boy, aged six years, in whom, on attentive

examination, I was led to suspect the existence of a scrofulous taint. At the time I saw him he was subject to a sudden and rapid formation of bumps, or tumours, on various parts of his body—sometimes on his arms, sometimes on his legs, and occasionally on the trunk. These circumscribed tumefactions were accompanied by a feeling of heat and tenderness, and apparently depended on local congestion, or effusion in the subcutaneous cellular tissue. But what was most remarkable in them was, they arose, ran through their course, and terminated in the space of four or five hours; they were suddenly developed, and disappeared with equal rapidity. In the course of a month, other more permanent inflammations were set up; scrofulous ophthalmia, glandular swellings, and ulcers supervened; the joints became affected, and the boy died in about a year and a half, with all the characteristic marks of the scrofulous diathesis. I have detailed this case before, and shall not dwell on it any further at present; but it is well worthy of notice, in consequence of the very brief duration of the first local symptoms.

Gout is another disease which occasionally exhibits examples of its peculiar inflammation attacking various parts and tissues of the body, and that for an extremely short period of time. It is well known that persons of a gouty habit are subject to sudden pains or twitches, which last only for a few minutes, or even seconds. I shall not stop here to consider what may be the nature of these fugitive pains; I may observe, that certain facts seem to prove that these pains are the result of a momentary congestion. Thus, in various neuralgic affections, and in inflammatory diseases in which the nerves are considerably engaged, pain is suddenly produced by coughing. If a man labours under neuralgia of the frontal or facial nerves, or if he is affected with sciatica, how are his sufferings increased when he has unfortunately at the same time a cough! Every time he coughs, the affected nerve gives notice that it feels the congestion by a sudden pain. Now, the only way in which coughing can increase a local pain is by favouring local congestion; that it is capable of doing this is proved by the redness of the face it occasions, as also by the hemorrhage from the nose, or from recent wounds, which is so often produced by a fit of coughing.

As there can be no doubt, then, that a momentary congestion may produce a momentary pain, we may infer that in many instances gouty twitches are owing to some cause which determines an instantaneous congestion of the affected part. Sometimes the congestion is more lasting, and the pain is proportionally intense and persistent. Thus, the late Mr. Daly, of Henry-street, mentioned to me the case of a gentleman, the lobe of whose ear was sometimes attacked suddenly by gouty congestion, accompanied by agonizing pain, but which never lasted more than a few hours. And I have myself recently suffered from a similar attack in the *cartilage* of the ear, which did not last longer than an hour, disappearing on the occurrence of gouty pains in the fingers.

This fact brings to my mind a curious case which some years ago came under the notice of Sir Philip Crampton, Mr. O'Ferral, and myself. A young gentleman of fortune perceived that the pendent lobes or tips of his ears were becoming elongated; they increased gradually in such a manner that he considered himself disfigured by their unseemly length, and therefore attempted their concealment by allowing his hair to grow in long curls, so as to hide the ears. This gentleman soon afterwards became dropsical and died; and, on dissection, Mr. O'Ferral found his liver in a state of fatty degeneration. On slitting up the elongated portion of the ears, he discovered that

their hypertrophy had been occasioned by the deposition of a large quantity of fat. The subcutaneous adipose tissue and the omentum were likewise much loaded with fat. This observation is of much importance, as teaching us that fatty degeneration may be the consequence of a general tendency in the system to manufacture and deposit fat in the textures of different organs. In this point of view the change of structure in the liver must be regarded as an effect, and not as a cause, of the general derangement of the system and the fatal termination of the case.

One of the most remarkable instances of fugitive inflammation affecting various parts of the body, which has come under my notice, occurred in the person of a gentleman lately under my care. I shall not go through the whole history of his disease, of which he has favoured me with a very minute account, but shall merely state that he is of a gouty habit, has had an attack of gout in the stomach, and is at present subject to a gouty affection of a very extraordinary character. After labouring for some time under languor and weakness, accompanied by spasms, pain, and sense of weight in the stomach, the pain of the stomach ceases, and his face begins to swell at various points, generally commencing on the forehead, and involving the cheek and eye so as to close up the latter. He first feels as if a small current of air was directed on the face; then, as it were, the fillip of a finger, or the bite of a gnat; and, on looking in the glass, he suddenly perceives a tumour rising on the forehead, which, in the space of half an hour, becomes as large as a pigeon's egg, and, as he expresses it, moves down until it closes the eye. Sometimes it attacks his lips, and other parts of his face, but never affects his nose. These tumours have also appeared on various parts of his body; and he observes in his letter to me, that he is sometimes led to think that they attack his stomach also. Before and during an attack of the face, which generally occurs on the left side, the discharge from the nostril of the affected side ceases.

But what is chiefly remarkable in this case is the singular character of the local affection. The tumours arise, run through their course, and disappear in the space of a few hours, and on the following day there is no trace of their existence. Sometimes the lips inside of the mouth, palate, and uvula are attacked, giving rise to a very considerable inconvenience. Were such tumours to occur in the neighbourhood of the glottis, I need not say that they would be pregnant with danger of no ordinary character. I may observe that this gentleman has derived great benefit from the use of hydriodate of potash, and from decoction of sarsaparilla with nitric acid, and that his health is at present much improved. His case presents a very curious example of transient local inflammation depending on the gouty diathesis.

Having touched on the subject of anomalous local affections as connected with the gouty habit, I may here refer to a very singular affection of the teeth which I have observed in individuals of a gouty diathesis. The disease I am about to describe, though very singular and remarkable, has not been noticed by practical writers. A few preliminary remarks on the functions of the dental nerves appear necessary, in order to enable you to form a more exact idea of its nature.

The teeth are immoveably fixed in the jaws, and consequently require no nerves of motion so far as they themselves are concerned; they are on the other hand abundantly supplied with nerves derived from the fifth pair—a nerve of sensation, and their nervous apparatus is developed and expanded within their substance in a manner which shows that nature has bestowed a

greater degree of care on this than on any portion of the nerves destined to perform the office of touch. In this respect, they, to a certain extent, approach the affection of the nervous apparatus of the organs of sense properly so called. In truth, no part of the mechanism of the human body seems more admirable than that which thus associates together in function a soft nervous pulp and a solid osseous substance; and associated together they assuredly are, for the teeth, though encrusted with a coat of enamel as hard as steel, are very delicate organs of touch; the most minute bodies when hard may be distinctly felt if placed between their edges; and matters of more yielding texture, as a leaf of paper, or a rose leaf, can be distinguished in the same position.

The delicacy of touch enjoyed by the teeth has not attracted due notice, nor have its uses been sufficiently dwelt on, for to this sense are owing the ease and precision with which, as instruments, they perform their proper office of cutting, tearing, and grinding the food. It is from the feeling imparted to their edges that we derive instant knowledge of the situation, and many of the physical properties of the morsel, such as its hardness, consistence, shape, size, &c., in consequence of which it is either at once submitted to the action of the teeth, or is removed to be placed in another part of the mouth, and in a more convenient position where teeth of a different shape and form may be brought to bear on it. Without this exquisite sense of feeling, one row of teeth could not act in concert with the other; the incisors and molars in the under could not adapt their cutting and grinding surfaces to those in the upper jaw, nor could certain information be conveyed to the muscles of the lower jaw for the purpose of commanding the consecutive motions they are called on to perform.

In fact, the teeth are not merely cutting instruments, but are endowed as it were with intelligence; they are, it is true, assisted in ascertaining the size, portion, hardness, and other physical qualities of the morsel by the tongue and cheeks, but they perform besides a peculiar function, that of feeling the intimate texture of what is submitted to their immediate operations, thereby warning us instantaneously when the morsel contains anything detrimental to their own substance; without this sense of touch how soon would our teeth be chipped away and worn by minute but hard matters, as grains of sand, which no care can entirely exclude from our food, but which the teeth detect at once when in contact with their edges, and which they refuse at once to act on. In truth, the teeth may in this point of view be considered as a sort of fingers fixed within the mouth, destined to feel, examine, and adjust the morsel preparatory to placing it in the position most favourable for mastication.

It is very strange that no example of paralysis of the dental nerves has as yet been observed. This subject has engaged my attention for several years, and I have been in the habit of inquiring from all my paralytic patients whether the sensibility of the teeth was lessened; but in no one instance have I been able to detect anything approaching to the loss of sensation in these organs, an immunity difficult to account for, and I believe unexampled, for I am not aware of any other nerve either of sense or of motion which is not occasionally involved in the progress of paralytic affections; nay, I have been more than once obliged to direct the removal of teeth in hemiplegic persons in consequence of toothache on the paralytic side. This immunity from paralysis, corroborated by the extensive experience of Mr. McClean, seems the more surprising, when we recollect how subject the dental nerves are to the

opposite affection, or a morbidly increased and exalted state of sensibility constituting the various forms of toothache.

Some physiologists have been inclined to suppose that the temperature of bodies is judged of by other nerves than those which are the instruments of the sense of touch ; but it appears that if other arguments against this hypothesis are wanting, the instance of the teeth alone would be sufficient, for here most undoubtedly the sense of touch and the discrimination of temperatures are both functions of one and the same nerve, for the teeth possess but one.

The disease to which I would now direct attention consists in an insuperable desire on the part of the patient to grind his teeth. This desire originates in a disagreeable uneasy sensation in the teeth themselves, and is for the moment alleviated by forcibly grinding them together, but immediately returns when the patient ceases to perform this action, which is therefore continued when the disease is confirmed during the entire day. When asleep the patients no longer grind their teeth, the grinding being in all cases the result of voluntary motion. I have now become acquainted with the cases of four persons so affected, and it is very remarkable that they were all of a confirmed gouty habit. The first person in whom I observed it was my late excellent and esteemed friend the Countess of Egmont, in whom this habit had become so confirmed, that she was impelled to indulge in it continually, for the moment she desisted, the uneasy sensation in the teeth became insupportable, and consequently she was obliged to give up all society for several years before her death. The grinding was in her case strong and forcible, and having been so long continued, at last wore down her teeth to the very sockets. I consulted several of the most eminent surgeons in London on her disease, among the rest Mr. Abernethy, but none were able to suggest any means for its alleviation. She was so thoroughly convinced that some permanent cause of irritation existed in the teeth themselves, that at different times she had several of them drawn in hopes of procuring relief, but they were found to be perfectly sound.

I was lately consulted by the Rev. Mr. B., likewise of a gouty habit, and who is driven from general society by precisely the same affection. In him the molar teeth are worn quite flat and smooth, and the incisors and canine teeth have undergone a remarkable change, particularly the former, which being constantly *whetted* by each other, have acquired chisel-shaped edges, and are so sharp that when he inadvertently passes his tongue over them, they make an incised wound like that inflicted by a sharp knife. This gentleman's teeth have the enamel all worn off the crowns, and consequently their surfaces present a section of the internal or osseous portion of the tooth ; and it is remarkable that in this as well as in the other cases, the internal or nervous cavity of the tooth is never exposed, but appears to be filled up with bony matter, in proportion as the process of grinding wears away the crown, just as has been observed in the case of old men, such as sailors, who have been in the habit for many years of chewing sea-biscuit. The same phenomenon has been likewise observed in the teeth of skulls supposed to have been Roman, from which it has been inferred that they had generally subsisted on very hard food.

The third case was that of a young clergyman in the south of Ireland, likewise of a gouty habit, and who was afflicted with *tic douloureux* of several branches of the fifth pair, and, among the rest, of the dental nerves of the left

side; in him the teeth in the left side only were ground down, and the disease ceased after a continuance of two years.

The third case I have not seen, but the following particulars have been furnished me by Dr. Battersby:—

“Henry W., County Meath, aged 60, has suffered from attacks of gout for the last thirty years, which are now so tedious and severe as to confine him to his bed for at least five months annually; about three years ago he was observed gradually to get a habit of grinding his teeth, which he now does constantly while awake, and so loudly as to be heard in the next room; he is not conscious of it unless when spoken to, I believe, and his teeth are quite ground down. Two years ago he had an attack of what he called gout in his teeth, and wanted to have them pulled out.”

I have now seen several cases of this kind, and I have observed that they all occurred in persons of the gouty diathesis. The grinding of the teeth continues for years as a daily habit, and produces very remarkable changes in the conformation of these organs, affecting sometimes one side of the jaw, sometimes both; so that in confirmed cases we frequently find the teeth ground down to the level of the gums. There is not at present the slightest doubt on my mind that the irritable state of the dental nerves which gives rise to this irresistible tendency to grind the teeth, depends chiefly on the existence of gout in the constitution. I may observe, however, that in many persons in whom the teeth are found worn nearly to the gums, there appears to be another cause in operation. Thus, in cases of indigestion, it is not unusual to find the enamel of the teeth partially or considerably worn away long before the natural time; and in such instances we used formerly to attribute the injury to the generation of acids in the stomach. The researches of Donné and Thomson, however, have shown that the saliva is subject to very remarkable alterations in certain forms of dyspepsia, and that whenever the disease is accompanied by much irritation of the gastric mucous membrane, and derangement of its secreting functions, the saliva becomes extremely acid, and, of course, capable of corroding the enamel of the teeth. The following case has recently come under the notice of Mr. Pakenham, of Henry-street:—

“A gentleman, aged 45, slightly made, but muscular, and born of healthy parents, was attacked with shivering and loss of power of the right side after a severe wetting. He recovered under appropriate treatment; but, about a year afterwards, began to observe in himself a tendency to grind his teeth, which gradually increased to such an extent as to prove a nuisance to himself and every one about him. Under these circumstances he consulted an eminent surgeon in Dublin, who applied the actual cautery behind one of his ears, slightly affected his system with mercury, and extracted one of his teeth,—all with considerable relief, which lasted for about six months. He then became as bad as ever, and applied to another surgeon, who tried iron in every form without success: and subsequently to a third practitioner, who used in addition leeching, blistering, postulation with tartar emetic, and various other remedies, but without any favourable result. All this time his medical attendants, so far from suspecting the presence of gout, ridiculed the idea of its existence.

“About three months ago this gentleman came to Dublin, went to dine at the house of a friend, and, with some others, supped late at night, and drank some whisky punch. Next day he had vomiting, purging, and epigastric tenderness, and on the day after, the ball of his great toe became swollen, hot, and exquisitely painful, leaving no doubt as to the nature of the affec-

tion. In this gentleman's case the grinding of the teeth is not constant, but it is always greatest when the stomach is most deranged. The teeth in the under jaw are all sound : three or four of the molars of the upper jaw have been extracted. The four upper incisors are ground nearly half way through to the gum on the one side, while the lower are very little worn. By pressing the tongue against the upper incisors, or by touching a certain point of one particular tooth, he can at any time arrest the tendency to grind, and can suspend it as long as pressure is continued in the manner just described."

Although I have as yet been unable to discover any mode of alleviating the sufferings of patients affected with this hitherto undescribed disease, I have thought it right to give you the preceding short account of its chief symptoms, in the hope that others may be induced to publish the results of some successful method of treatment.

With the view of further illustrating the varieties of gout, I shall detail the following remarkable case, which came recently under my notice. The patient, a gentleman of large fortune, is of a strong and athletic frame, about five and thirty years of age, and a member of a family subject to gout. He was much addicted to field sports, and accustomed, in cold weather, to frequent immersion of his feet in cold water, in pursuit of his favourite amusement, snipe-shooting. The consequence of this exposure has been, that he has been labouring for some time under a neuralgic affection of the lower extremities, which commenced in the feet and ankles, and extended gradually upwards, involving the whole of the lower extremities as far as the hips, and giving rise to sufferings of a very intense character.

Repeated exposure of the feet to cold seems often to lay the foundation of creeping paralysis. Now in this case there is some danger that the gentleman, were proper measures neglected, may ultimately become paraplegic, or even generally paralytic. I do not bring this case forward as an example of gouty pains gradually advancing from the extremities towards the spine ; for although I strongly incline to the opinion that his complaint is of a gouty nature, and although most of his medical advisers have suspected a gouty complication, still this is by no means a decided point ; but the opinion of his usual attendant, Dr. Little, of Sligo, exactly agrees with mine, as he considers the case to be gouty neuralgia. Be this as it may, his case presents a very interesting specimen of creeping neuralgia, chiefly affecting the cutaneous nerves (nerves exclusively destined to perform the function of sensation), but gradually implicating the nerves of motion in the disease. I shall now proceed to lay before you the details of this case, which have been noted with singular accuracy and ability by the gentleman himself. In a letter to me he observes :—

"As you wish for a description in writing of the manner in which I am affected, I subjoin every particular I can think of which seems likely to throw any light on the subject.

"It is now nearly five years since I began to suffer severely from pains in my limbs, which for the last two or three years I have looked upon as neuralgia. About a year previous to that time I had occasional pains in one foot, which increased so as to become violent on one occasion, after a long ride. I had, however, been always in the habit of riding, and considered that exercise to agree particularly well with my health. Indeed, I had found hunting of great use to me when suffering from liver complaint, having had inflammation of the liver twice in my life. It is now fourteen years since I had the last attack of liver disease, and I very seldom have pain in my side ;

whenever it occurs, it is generally removed by the use of a little blue pill.

"When first the pains in my limbs commenced, they were confined to my feet; then, for a long time, extended no higher than my knees; latterly they had ascended as far as my hips, where, and in the groin, I sometimes experience great suffering. I have had occasional twitches in my arms, and very slightly across the chest. The pain always comes on with sudden violence, which renders it very hard to bear, especially when it attacks me during sleep. I am frequently aware of its approach, from a general feeling of discomfort and depression; from which, in the beginning of my complaint, I used to suffer very much for two or three days before an attack. These paroxysms have, for four years, shown a great tendency to periodicity, recurring generally once every week, commencing on Saturday or Sunday, and sometimes on Friday, and lasting till Monday. They have twice or thrice lasted for a week together, but sometimes continued only a few hours.

"In the commencement I have occasionally been free from them for two or three months together; and within the last year was free from them, at two different periods, for a whole month. When in pain, I have never experienced the slightest alleviation from anything, except at times from a full meal with wine, particularly champagne. I have often been unable to remain in bed from the violence of the pain, which is increased by the weight of the bed-clothes, or the slightest touch of anything; even the air blowing on the part brings on violent torture: at the same time I can bear strong pressure, or even a blow on the parts, without making me worse. The pain appears to be quite on the surface, except that sometimes it appears deeply seated, particularly in the ankle-joint and shin-bone. It is unaccompanied by any redness or swelling, and flies instantaneously from one limb to the other, rarely occurring in both at the same time. It leaves behind great weakness of the affected limb, so as to oblige me to walk with a stick for some time, and occasionally with two.

"One very unpleasant consequence of the pains in my limbs is, that I now find I cannot use exercise on horseback, if I leave it off for any time. I have found this and walking at all times conducive to my general health. Indeed I can still walk a good deal, even during an attack, although it is very painful, particularly when setting out. I find it necessary almost constantly to have recourse to aperient medicine—generally rhubarb pill. At times I have had giddiness of my head, and noise in my ears, to a very distressing degree; and have had recourse to powerful purgatives, and even bleeding, to remove the symptoms, without effect. A medicine, principally nervous, in which gentian was an ingredient, relieved me at one time, after finding the above remedies ineffectual.

"I have already tried iron, mercury, nitro-muriatic acid, stramonium, arsenic, and the external use of croton oil, without benefit, except that I felt rather better for a month after the use of these remedies, but no longer, and the pain returned with great violence at the end of that period. The counter-irritation appeared to increase my sufferings. I have also tried anodyne embrocations without effect. Anxiety of mind, or annoyance, often brings on an attack. I even remarked, the other day, that it came on instantaneously, on breaking a tooth whilst eating. On the other hand, excitement, whether from a sudden necessity for exertion, as on occasion of an accident, or anything that gives a pleasing interest and occupation to my mind, such as travelling through an interesting country, seems to keep off, and sometimes even remove an attack."

The following most interesting account of his own case, which I received from Dr. Mackness of Hastings, and which I read from his letter, bears much similarity to the foregoing case; on which account I introduce it here. All the symptoms however, may, I think, be ascribed to *functional* derangement of the spinal marrow:—

“The symptoms in the case of what is here called gouty neuralgia are, in some respects, very similar to what I have myself suffered, and this without any hereditary or constitutional tendency to gout. I am inclined to think that the malady has its origin in slight inflammation or irritation of the spinal cord or its membranes, this state being excited by certain impressions made upon the extremities of the nerves, especially of the lower limbs, and carried along the trunks to the nervous centres,—cold being usually the exciting cause; but for this to produce the specific effect of which I speak, I believe it necessary that the digestive organs should be in a state of irritation: such was the case with me. I was residing in the country at the earliest commencement of my disease, where the atmosphere was usually loaded with moisture, arising from a sluggishly flowing river, a short distance from the banks of which my residence stood. I had, in attending to my professional duties, much night work; riding, perhaps, for several miles on horseback through a foggy atmosphere, and then having to sit for hours in a cold cottage or farm-house, my feet and legs as cold as if they were immersed in ice water. I was very temperate in my habits, but I suffered much from dyspepsia; at first the pains were slight and the paroxysms very short, but gradually they became more severe and of longer continuance, generally affecting the lower extremities; at the same time there was slight loss of power in these limbs, which manifested itself by a little awkwardness of gait, and was more observable to my friends than to myself. This state of things continued rather increasing in severity for two or three years, at the end of which period my gait became much more unsteady, and I found it difficult to walk in the dark, or where my eyes were not fixed on the road. Bilious attacks, attended with constant sickness and vomitings of bile, with severe pain in the brow and shoulder, then began to visit me at stated intervals, these intervals becoming shorter and shorter, until I rarely passed a month without having had two or three. In the meantime the pain became more severe; so intense was it at times, that I have as much dreaded any of my family coming within a yard or two of me, for fear that some part of their dress might touch me, and thus excite a paroxysm, as any hydrophobic patient dreads the sight of fluid or any glistening surface. A draught of air was often quite sufficient to excite the paroxysm: what was perhaps worse to bear than even the pain itself, was the constant dread I had during an attack of its coming on. It was not one part only that was affected, but oftentimes the whole of the extremities in turn, yet mostly the lower. I have sometimes tried to point out to my friends the spots which the pain attacked, but so quick were the transitions from one place to another, that although I have tried to touch each part successively, I have always failed in being able to do so sufficiently quickly. The cutaneous nerves were often so sensitive, that the slightest touch would produce the most exquisite torture: thus giving an example of the law established by Dr. Marshall Hall, that in proportion as the muscles become less under the control of the will, this irritability becomes increased. This continued strain upon the nervous system produced epileptic fits, which continued for some years, and another affection of the nervous system—spasmodic closure of the glottis—began at this time to show itself,

often threatening suffocation. It is very singular that my father was subject to the same affection. At length I gave up my professional duties, after having suffered for four years a martyrdom, and went abroad, at first with some benefit, but I afterwards became worse. Having been accustomed to a very active life, the change to one of complete idleness, although at first useful and pleasant, became after a time intolerable, and produced a state of ennui upon the mind which appeared to keep up the malady. In this state, weak and emaciated as I was, I determined once more to resume my professional avocations, and as I had found by experience that a cold damp atmosphere with a clayey subsoil was injurious to me, I chose this place for a residence, where I have now resided eight years; my health and strength gradually improving. The means which I have found most useful in my case have been a simple but nourishing diet, taken only in such quantities as the stomach would bear without a feeling of oppression, moderate exercise not amounting to fatigue, and agreeable occupation of the mind. I do not now suffer often from the disease, and when I do suffer, the attacks are trifling compared to what they formerly were. My firm belief is, that I should not suffer at all if my mind was perfectly quiet and pleasantly occupied; but I have now a large practice, often much bodily and mental fatigue, and sometimes considerable exposure to the weather in long journeys; and as these are inseparable from the practice of a profession which I love with all my heart, I make up my mind to suffer a little rather than forego it. I have reason to think that the situation of Hastings is peculiarly favourable to my disease. I have never fully recovered the perfect use of my lower extremities, yet they are much stronger than formerly; for I used to require a stick to walk with, now I never or rarely use one. I do not, however, walk much, as I find I am soon tired."

Another singular affection I have lately witnessed in connexion with gout, I may mention here. A lady of a decidedly gouty habit, aged sixty, applied to me under the following circumstances: for the last two months she had become liable to a daily paroxysm, which observed the following course. About three o'clock in the afternoon, her nose began to grow hot, and the heat continued for four or five hours, the part becoming first of a bright, and then of a purplish red colour, which spread to the upper portion of her cheeks, and was accompanied by some uneasiness, but no pain, and always subsided about the same hour in the evening. I advised small doses of colchicum to be taken in this case.

In general, a regular attack of gout in the extremities is preceded by a longer or shorter period of constitutional disturbance and dyspepsia. We must not, however, in making the diagnosis between gout and rheumatism, consider this distinction as not liable to exceptions, for I have seen more than one case of hereditary gout, in which the arthritic attacks came on suddenly, without the slightest precursory derangement of the health, or the operation of any assignable cause. I have as yet seen no instance of a similar nature in acquired gout.

Another exception to the general rule is also worthy of notice. In general, a fit of the gout is preceded and accompanied by a scanty secretion of turbid high-coloured urine. As the fit goes off, the urine increases in quantity, becomes clearer and paler, and loses its tendency to deposit the lithates and purpurates. Now, in two cases of hereditary gout, I have seen this order reversed, and the approach of the fit announced by a great increase in the secretion of urine, which was quite watery and limpid, and continued so

until the violence of the articular inflammation began to decline. The urine then became scanty, and deposited the lateritious and pink sediment in great abundance.

That the gouty diathesis may excite its specific inflammation in most of the tissues of our organs is a fact generally admitted; but I regret to state that our knowledge concerning the effects which it produces in these various tissues is far from being accurate or extensive. Beere, M'Kenzie, Middlemore, and others, have done much towards elucidating its effects on the eye and its appendages; and we are tolerably well acquainted with its progress in serous, synovial, and fibrous membranes. What changes it produces in the secretions of mucous membranes is a question which has not been studied with an attention commensurate to its importance. Thus, though all acknowledge the existence of gouty cough or bronchitis, the diagnosis and history of this affection are still very incomplete. This has been acknowledged by Dr. Stokes, who has published by far the best account of bronchitis which has yet appeared.* The effects of gout on the lining membrane of the urethra and bladder are better known and studied, but I think that much still remains to be done in this as in every other class of inflammatory diseases, where the inflammation depends upon a constitutional taint.

In my published lectures I have long since expressed an opinion at variance with that generally taught concerning the bronchitis and pneumonia which accompany pulmonary consumption, and I have brought forward strong reasons for believing that too much importance has been attached, and attention too exclusively devoted, to the tubercles in this disease. Thus, authors talk of tubercular pneumonia, where it would be more correct to designate the affection as scrofulous pneumonia accompanied by tubercles; they speak of tubercular cavities and abscesses in the lung, in cases where scrofulous cavities and abscesses exist. In fact, I repeat it emphatically, that the essential characteristics of phthisis pulmonalis are derived from scrofula. This it is which converts what would be common into consumptive pneumonia or bronchitis—this it is which so often renders both incurable.

Tubercles and tubercular infiltration are mere results of nutrition morbidly modified by scrofula; they are effects, not causes. They often exist without scrofulous inflammation, and the latter may exist without them. It gives me much pleasure to find that these opinions, which I published many years ago, have received ample confirmation from the observations of Dr. Kingston, in a paper read before the Royal Medico-Chirurgical Society of London, and shortly noticed in the *Medical Gazette*, April 29, 1837.

In pursuing the subject of my lecture, I shall now turn to the consideration of some phenomena connected with the gouty diathesis, which possess a much deeper interest, and lead to views of far greater importance. I mentioned before, that we frequently observe flying pains, or twitches, in various parts of the body, arising from a rheumatic or gouty cause; that in some instances these affections appear to be limited chiefly to the nervous trunks or branches, and that we have thus what may be termed gouty or rheumatic neuralgia. We are familiar with rheumatic or gouty sciatica, and we know that the history and termination of this form of disease often prove it to be inflammation of a specific character, chiefly confined to the trunk of the sciatic nerve. Now, it is not unreasonable to suppose that this specific inflammation of a

* "On the Diagnosis and Treatment of Diseases of the Chest," by W. Stokes, M.D. This work places its author among the first medical observers of the day, and has acquired for him a European fame.

nervous trunk or branch may, like other inflammations, extend farther, so as to involve parts of more importance to the economy.

What I wish to draw your attention to is this—that in certain cases, where gout attacks the nerves, giving rise to gouty congestion or inflammation frequently recurring, and acquiring increased strength and deeper root as it proceeds, the morbid affection may, after years, or even months, run on until it reach the spinal cord, involving a certain portion or portions of that organ, and producing loss of sensation and motion commensurate to the amount of spinal derangement. This is by no means an anomalous occurrence; it is merely an instance of disease originating in the periphery of the nervous system, passing along the trunk of the affected nerve with a retrograde motion, and finally reaching the central parts.

It is too much the custom to look upon paralysis as depending upon original disease of the nervous centres. When I come to speak of paralysis, I expect to be able to prove to you that, very often, disease commencing in the nerves of some particular part or organ may be gradually propagated to the spine, producing all the symptoms which are referable to an original affection of the nervous centres. I shall also bring forward numerous facts in proof of the propagation of disease from the circumference to the centre of the nervous system; and the pathological deductions to be drawn from these facts seem to me to include all the physiological discoveries made by Müller and Marshall Hall, concerning what the latter terms the reflex function of the spinal marrow. I shall be able to show you that enteritis, arising suddenly in two young and healthy persons, from indigestion and obstruction caused by an error in diet, was followed in both by well marked paraplegia. I shall likewise bring before you examples of paraplegia connected with stricture of the urethra, and which were relieved by curing the stricture; and I shall detail cases of acute and chronic affections of the uterus and kidneys, which had entailed on the patients, as a remote consequence of the original disease, loss of the power of motion in the lower extremities, sometimes partial and curable, sometimes irremediable and complete.

The cases I am about to relate to you now are most interesting and valuable, and enable me to carry this principle still farther, by proving that *gouty inflammation of the nerves and their neurilemma may, in process of time, extend to the spinal marrow and its investments, and give rise to derangements of the latter, terminating in ramollissement and structural degeneration.*

The subject of gouty degeneration of the spinal cord has not been alluded to distinctly by any author with whom I am acquainted, and is, as far as I can learn, quite new. The deductions, therefore, which are drawn from my cases must, of course, be subject to such modifications as may be derived from future experience, and must remain to be confirmed by further observation. It has been long known that gout may attack the brain, and the existence of gouty paraplegia is well known by practitioners who have studied attentively the progress of arthritic affections. Thus, in a case which I witnessed some time back, in consultation with Mr. Kirby, he prognosed the supervention of paraplegia at a time when the indications of its approach could not have been discovered by any observer of less experience and sagacity.

I have already stated that gouty affections of the brain have long been known, and I am not sure that some of the older authors may not have alluded to gouty affections of the spinal marrow; but as our knowledge of the peculiar state of the brain and spinal cord, termed ramollissement, is

comparatively recent, and not dating with any degree of accuracy earlier than the works of Abercrombie, Rostan, and other modern authors, it is obvious that any observations made by the older writers concerning gouty affections of the nervous centres, can have no distinct reference to this lesion. The connexion, therefore, of ramollissement of the spinal cord with gout may be considered now, for the first time, distinctly pointed out. As one of the cases which I am about to detail presented an example of the most extensive ramollissement of the spinal marrow on record, it would, on this account alone, be especially deserving of attention ; but its interest is increased ten-fold when placed in juxtaposition with the second case, so as to exhibit in a striking point of view the close resemblance observable in the march or progress of both, as well as the identity of the lesion discovered after death.

Mr. —, residing in the Island of Anglesey, was very much addicted to field sports, and, while thus engaged, would occasionally remain for a whole day without food. He was also very fond of angling, and has been frequently known to wade up to his waist in water for many hours together, during very cold weather. His general health was good, and his habits were abstemious. In 1825, when about twenty-five years of age, he had fever, attended with inflammation of the joints, and said to be rheumatic : some pain and stiffness, and an evident enlargement of the knee-joints, remained after the other articular affections had disappeared ; these symptoms, however, yielded in a few months to rest and appropriate treatment. His health also improved greatly, and he had no complaint of any kind whatever until the autumn of 1828, when he had a slight attack of ordinary cholera, after returning from a shooting excursion.

In the spring of 1832 he was attacked with pain in one foot, supposed to be of a gouty nature. This pain disappeared during a drive of fifteen miles in an open carriage, but a certain degree of tenderness remained, and was always felt, more or less, in the part originally affected. He had a similar attack of pain and tenderness in the same foot in the following autumn. At the time when this attack commenced he was twenty miles from home, and observed that during his journey the pain became diminished as before, and in a few days subsided altogether. In August, 1833, he had a similar, but much more severe attack : the pain was much more violent than before, and both feet were affected. This, however, did not prevent him from following field sports as usual. He went on horseback to the mountains to shoot grouse ; and to this exercise, and drinking a bottle of wine, he attributed his speedy, or rather sudden recovery from the pain in his feet.

Hitherto we have seen a naturally strong constitution struggling successfully against exposure to cold, imprudent habits, and a most injudicious method of disturbing, or rather repelling, local inflammation depending on a gouty diathesis. It is not easy to explain how it happened that driving in an open carriage, or riding over the mountains, so effectually cut short the paroxysms of gout in the feet ; but it is enough to know that the fits were suddenly and imprudently arrested, to be prepared for the consequences which ensued—viz., an irregular distribution of the gouty effort, and its determination to internal organs.

In September, 1833—that is, about a month after the sudden subsidence of the last attack—he was seized with violent colic, accompanied by obstinate constipation. The pain was very severe, but he suffered more from a general feeling of restlessness (a restlessness beyond belief, as he expressed it) than from actual pain. He was also greatly annoyed by singultus, and was

jaundiced after recovering from the attack of colic. In January, 1834, he had another attack of colic, preceded by a fit, the precise nature of which I was unable to ascertain. As these abdominal attacks frequently recurred, I shall give a description of one of them, as communicated to me by Dr. Llewelyn Jones, jun., his attending physician.

"A dull, wearing, and fixed pain would attack the patient in the region of the colon: this pain was not increased by pressure, and was accompanied by nausea, occasionally by vomiting, and always by obstinate constipation. These symptoms were attended with a most distressing sensation of restlessness and anxiety. They lasted on one occasion for three days and nights before I could get the bowels opened, when they were immediately mitigated. The pulse was never quickened, and in general remained natural; but if the attack was prolonged, it became weak. There never was any fever, nor any well-marked indication of inflammation in the abdomen. These attacks were always preceded or followed by a gouty affection of the feet."

The attacks in the stomach and bowels recurred frequently, and always with the same symptoms, until August, 1835, when a visible tremor of the fingers became observable: during some preceding attacks he used to complain of weakness of the wrists and pains in the fingers, particularly the last joints. As the disease progressed, these pains became more intense and extensive, and the torture he felt in the hands and arms was beyond description. After August, 1835, he began to lose the use of his arms, the tremors increased, and he began to complain of stiffness about the neck, with great restlessness and anxiety. The abdominal attacks came on occasionally, but not so severely as before. The arms became gradually weaker, until the loss of muscular power was complete, and they were greatly emaciated; but Dr. Jones, who had the patient under his observation until August, 1836, could not detect any evident diminution either in the upper or lower extremities, and the intellectual faculties remained perfectly unimpaired.

In October, 1835, two months after the state of the upper extremities had indicated the approach of paralysis, the lower extremities became similarly engaged; they were affected with tremors and weakness, and in the following December the patient had an attack of violent pain, with swelling and increased heat in the ball of one foot, which was pronounced to be of a distinctly gouty character. After each attack of pain in the feet, as I have been informed by this gentleman's sister, the loss of power in all his limbs increased, and if he gained a little strength in the intervals between these attacks, a recurrence of the paroxysms always made him worse than before.

In February, 1836, I went to Anglesey to visit this gentleman, and saw him in consultation with Dr. Jones and Dr. Williams, of Denbigh. After a minute examination of the history and symptoms of the case, I declared it to be my opinion that a gouty inflammation had attacked the nerves of the extremities, and had finally extended to the spinal cord and its sheath. I said that at an earlier period of the disease I would have advised salivation by mercury, but as that was inadmissible under the existing circumstances, we should have recourse to other measures. I forgot to state that, from the commencement of the disease, the advice of Sir B. Brodie and other eminent practitioners in London had been obtained by letter.

It would be useless to detail the various general and local remedies fruitlessly employed in this gentleman's case. He went to Liverpool in August, 1836, for the benefit of further advice; but finding no relief, returned to Denbigh, where he died in the ensuing October. For some time before his

death he was greatly emaciated, and quite paralytic in all his limbs, but retained his faculties to the last. His body was examined by Dr. Williams, whom I had met in consultation in the preceding February. This gentleman informed me, that the viscera of the thorax and abdomen were healthy and normal, that no derangement or lesion of the brain could be detected, but that the spinal cord, opposite to the last cervical and first dorsal vertebræ, was softened to the consistence of thick cream; the remainder of the cord was also softer than natural, but did not present any thing peculiar in other respects.

In a letter which I have since received from Mr. Williams, to whose kindness I am much indebted, he expresses himself with regard to the nature of the patient's disease in a way which confirms the views I have taken. He observes:—"I once saw Mr. — in an attack of the gout in the feet, about three years before his death. There was much pain, and a decided gouty blush. Exposure in fishing and shooting to a very imprudent degree, while under the influence of these gouty attacks, I have no doubt did much to render the disease irregular and erratic."

The fact that the tremors and loss of power commenced in the arms two months before indications of paralysis of the lower extremities appeared, is sufficient evidence to prove that the spinal marrow was not the point from which the diseased action proceeded originally; for had this been the case, an affection of this organ, sufficiently violent to give rise to paralysis of the upper extremities so gradual in its progress, and so well developed, must long before this period have occasioned paralysis of the legs also. There is a striking analogy between the progress of the tremors and paralytic symptoms in this case and in cases of painter's colic; and the analogy likewise holds good as to the violent spasmodic affection of the bowels, and the constipation observed in both. It is further worthy of notice, that in painter's colic the nervous affection is accompanied by pain and weakness of the extremities, and ultimately, although long after the commencement of the disease, by spinal tenderness,—a fact which has been already noticed by Dr. Bright. Again, in painter's colic, as in the disease which I have just detailed, the affection of the spinal cord and the consequent paralysis are evidently subsequent to the disease of the peripheral portion of the nerves.

The next case which I shall now proceed to detail is one of equal interest and importance. A gentleman of robust frame, aged about fifty-five, and having an hereditary predisposition to gout, to which his father had been a martyr, and which had exhibited itself in one of his sons at the early age of thirteen, consulted me on the 7th of June, 1836. Being a man of extensive landed property, he resided chiefly in the country, and was in the habit of using much active employment and exercise, but indulged rather freely in the pleasures of the table. After suffering much annoyance from dyspeptic attacks and various premonitory symptoms, he had a regular paroxysm of gout in the spring of 1828; he had a similar one in 1830, and another in 1832, each occurring, as before, during the spring season, and remarkably severe. During the year 1832 he had several slight returns of the complaint, and in January, 1833, had an alarming attack of an enteritic character, accompanied by spasms of the stomach and acute pain of the extremities. In the autumn of 1834 he suffered greatly from a nephritic affection, and got relief after passing a considerable quantity of uric acid gravel.

In the spring of 1835 he had a fall from his horse, and for some time afterwards complained of pain in the small of the back and around the trunk.

He recovered, however, and during the summer and autumn of that year remained pretty well ; but in the last week of December caught cold, which was followed by severe cough, and pains in the chest and feet : the latter were then considered to be the effects of gout. From this period his health, though often apparently restored, was never firm : he became subject to sudden attacks of pain, particularly in the chest, which gave him much uneasiness. On the 3rd of June he consulted a physician in his neighbourhood, to whom he described his ailment as "a slight pain in the right side, which troubled him only a short time before he got up in the morning ;" this he stated he had felt occasionally for two months before. A very careful examination was made over the situation of the liver, the place in which he said he felt pain ; but no tenderness or swelling whatever was detected, nor was there any in the direction of the spinal cord. His pulse was at this time perfectly regular, his bowels natural, and no dyspeptic symptoms existed. He used, by the advice of this physician, tonic and laxative pills and a stimulant embrocation.

When he consulted me on the 7th of June, 1836, I found him labouring under what appeared to me to be pleurodynia of an intermittent and gouty character. During the day he was perfectly free from pain, but in the evening the pain commenced, and continued with violence until morning. It is unnecessary to detail here the various local and constitutional remedies which I employed in this gentleman's case, but without any favourable result. From the middle of June his symptoms became worse ; during the first part of the night his pains very severe ; towards morning he usually obtained relief by lying on his face, and carefully avoiding all motion. About the latter end of July, the pain, which had been almost constantly felt at the right side, moved to the left, imparting at one time the feeling as if a spear were passing through the diaphragm, and at another resembling the sensation as if these parts were squeezed in a vice. When he was in the horizontal position this pain was accompanied by a sense of weight ; and at times the pain would shoot upwards to the clavicles, producing tenderness of the intercostal spaces. When the diaphragm was free from pain, it most commonly attacked the postero-inferior edges of the scapula, and the dorsal region in its vicinity.

In August he tried the use of a warm bath, and found temporary relief from the first he took ; he remained too long in the second, which was heated to the temperature of 100, and nearly fainted. He used the warm bath six or eight times, but found no material benefit from it, and could not bear the pain produced by the jolting of his carriage in going thither. About this time there was a visible alteration in his gait and figure ; the left shoulder was elevated, his whole frame attenuated, and his face pale ; he had nearly lost all power of bending the spine, and walked with a peculiar stiffness of gait as if his arms were pinioned. On the morning of the 21st of August he stated that he had suffered great agony during the night, and on its abating, considerable tumefaction was observable under the right ribs. Dyspeptic symptoms now became urgent ; his urine scanty and turbid ; he became melancholy, and his mind was wholly occupied with sad presentiments. At my recommendation he came to town, in order to place himself under my more immediate observation, and to have the benefit of a consultation.

About the 30th of August he got, to his great joy, an attack of gout in both feet ; while this lasted, which was for about six days, he had complete relief from the agonizing pains in the diaphragm and chest. The interval of

tranquillity was, however, but of brief duration ; the inflammatory affection of the feet suddenly subsided, and the pain attacked the diaphragm with increased intensity. His strength, which had been rapidly failing, now gave way, and he became quite paraplegic. About the 10th of September the abdomen became engaged, without any alleviation of the thoracic symptoms, and he began to complain of constipation, tympanitis, and abdominal tenderness. The mucous membrane of the bladder became next affected ; he had retention of urine, with great irritation of the prostate gland, and it was necessary to draw off the water with the catheter several times in the day. This state continued from the 22nd of September to the 10th of November, when the sphincter of the bladder became paralysed, and the urine drained off as fast as it was secreted.

During all this time the urine continued to present the characteristic marks of the lithic acid diathesis in an extreme degree, and contrasted strongly with the secretion furnished by the inflamed mucous membrane of the bladder, which consisted of a greyish or whitish yellow, viscid, and somewhat puriform mucus, containing either a free alkali or an alkaline carbonate. This secretion was extremely adhesive, and hung down in long ropy filaments when the vessel in which it stood was inverted. The nature of this mucus was such as to prevent any reaction from taking place between its own alkali and the acid of the urine. The co-existence of two secretions in the bladder, the one alkaline and the other acid, as observed in this case, is extremely curious.

In this way the patient's sufferings went on every day increasing, and requiring the most extraordinary care to produce any alleviation, a task which was discharged with the most indefatigable humanity and attention by Mr. Richardson, to whom I am indebted for most of the details connected with the earlier history of this case. About ten days before his death the extremities, upper as well as lower, and the trunk, became quite paralytic ; and from the cervical vertebrae downwards all power of motion and sensation was lost. His voice now became weak and inarticulate, deglutition was greatly impeded, and he finally sank on the 27th of November, 1836.

It may be necessary to state that at the time the paraplegia was beginning to seize on the extremities, the patient was much annoyed by occasional involuntary jerking of the weakened limbs. This morbid action of the voluntary muscles continued when all power of voluntary motion had completely ceased.

This gentleman's body was examined twenty hours after death by Mr. Adams. The body and limbs were greatly emaciated, and there were several sloughing sores on various parts of the body and limbs, particularly over the scapulæ, sacrum, and ilium. The brain was perfectly healthy, with the exception of a slight effusion under the arachnoid, and into the fourth ventricle. On opening the spinal canal, which was done with extraordinary care and accuracy, the spinal marrow, from the fourth cervical vertebra down to its dorsal termination, was found converted into a morbid mass, of an ash-grey colour and pulpy consistence. The theca was quite healthy ; but on the first transverse section of it a great quantity of yellow serum flowed out, emptying at the same time the fluid contained in the fourth ventricle of the brain. When the medulla spinalis was slit from above downwards, various shades of colour were noticed on the surfaces of the sections. Opposite to the third dorsal vertebra a blackish colour prevailed ; and from this downwards a yellowish hue was noticed. Two little tumours, about the size of filberts, were found attached to the crura of the fourth dorsal vertebra ; these, as Mr. Adams remarked, were in all probability merely accidental formations. The bladder

was very much thickened in all its coats, and was so contracted that it could not contain more than three ounces ; its internal surface was of a dark-green colour approaching to black. The ureters were also thickened, the kidneys enlarged, and their lining membrane of the same dark colour as the bladder. The pelves and infundibula of the kidneys were dilated, and contained a reddish diseased urine, with some puriform matter, the odour of which resembled that of the urine passed during three weeks previous to his death. The other viscera did not present anything worthy of remark.

In order to understand the nature and progress of a disease like this, which travelled in a retrograde direction along the nerves and their sheaths to the spinal marrow, it may be well to point out some of the more striking phenomena by which it was characterized. In the first place, the long continuance of the pains at one side of the body only is in itself a demonstration that the disease was then situated in the peripheral extremities of the nerves, and not in the spinal marrow, for it has been well observed by Ollivier, that inflammation of the spinal marrow or its sheath can never remain confined to one-half of either for more than a very limited period. Indeed, so narrow is the cavity in which these parts are contained, and so intimate is the connexion of their constituent parts, that it is quite impossible for inflammation to remain more than a few hours, or at most a day or two, confined to either side.

Some facts connected with disease of the spinal vertebræ, and the pains accompanying the progress of that disease, may appear to contradict this view of the subject ; for in vertebral caries pains are often felt at one side or in one limb—nay, they often cease or seem intermittent. Now, in order to explain this, we have only to recollect that here the inflammation does not commence in the spinal marrow or theca, but in the bones, and that the nerves, after their exit from the spinal cord, are affected in all cases before the cord itself. The reason is obvious ; the affection of the nerves is secondary, and solely derived from their proximity to the inflamed bone and investing tissues ; and consequently the nerves on one side may be affected, while the corresponding nerves on the other side escape for the time, and until the disease in the bone extends itself to their neighbourhood also. This view of the subject has not escaped the notice of German pathologists.

In the case above related, the pains continued in one side for months, and were then suddenly transferred to the other, an occurrence which is quite irreconcilable with the idea of their dependence on primary spinal disease. The well-marked ease the patient experienced when the gout appeared in the feet, and the perfect intermissions of pain which he frequently enjoyed during the earlier stages of the complaint, afford strong evidence that the pains, however violent and excruciating they might have been during the paroxysms, did not depend on an original affection of the spinal cord. Had the fall which this gentleman received, or any other injury, induced inflammation of the spinal cord and subsequent degeneration of structure, the order and course of his symptoms would have been very different, and long intervals of comparative ease would not have intervened between the appearance of the first pains and the subsequent paralysis.

When paraplegia originates in disease of the spinal cord itself, retention of urine, or irritability of the bladder, often announce the approach of the disease long before the loss of power in the limbs becomes evident ; whereas, in all those cases in which the paralysis creeps from the extremities along the nerves towards the spinal marrow, the bladder is affected only at a late period of the disease, as occurred in the case which I have just detailed.

Finally, the remarkable similarity which exists in various points between this case and that of the Welsh gentleman, who had never met with any accident or injury, and in whom a considerable degree of ramollissement was observed, leaves no doubt that in both instances the disease commenced with gouty neuralgia and inflammation of the nervous extremities and their sheaths, which gradually extended to the central portions of the nervous system, and ultimately involved the spinal cord.

It is of great importance that you should be aware of this termination, and know that in gouty habits the sad results already noticed may be produced : particularly as a knowledge of this fact may lead to the timely adoption of preventive measures. Having experienced the total inefficacy of colchicum, hydriodate of potash, strychnia, and all the usual remedies, in relieving or removing this form of disease, I would be strongly inclined to recommend the early insertion of issues over the spine, with prompt and decided mercurialization. The late Mr. Colles has recommended the use of mercury in paraplegia, and cites some cases in support of the utility of the practice. It is to be regretted that he has not given any hints as to the mode of diagnosing the cases likely to be benefitted by the mercurial treatment, from those in which mercury would be inadmissible. Hence his recommendation loses much of its value, and cannot serve as a guide to those who have to treat spinal disease connected with paralytic symptoms. It appears, however, sufficiently plain that mercury, employed at an early period of the disease, is most likely to prove serviceable where symptoms of paralysis arise from inflammatory affections of the nerves or their neurilemma, or of the spinal cord and its sheath.

So far at present on the subject of paralysis as connected with the gouty diathesis. I hope to be able in a short time to bring it again before you in a more complete and extended form.

In the preceding observations we proved that gout often attacks the nerves of the extremities in the first instance, and then pursues a retrograde course until it reaches the spinal marrow. It is an acknowledged character of gout that it wanders from one organ to another, and that it is very uncertain as to the periods and duration of its attacks, sometimes appearing to have ceased altogether, again only to return with redoubled violence. These characters of gout are strikingly displayed in the two cases I have related, where it finally seized on the spinal marrow ; and it is quite possible that what took place towards the fatal terminations of these cases, may in other gouty subjects occur at a much earlier period, and without the previous occupation by the disease of the nerves of the extremities : indeed, there is no reason why gout should not attack the spinal marrow and its investing membranes in the first instance, or in consequence of metastasis. That rheumatism, the disease most closely allied to gout, may do so, has been proved by numerous examples, of which we owe some of the most striking to Dr. Copland and Dr. Prichard, for the result of whose researches on this subject I must refer you to the article Cholera in Copland's *Dictionary of Practical Medicine*, where you will find that rheumatism not unfrequently produces both acute and chronic inflammation of the spinal membranes. These observations I make with the intention of proving that my views concerning gouty affections of the spinal cord are borne out by analogy, and the experience of others with respect to rheumatism.

LECTURE XXXII.

RHEUMATISM.—SCIATICA AND LUMBAGO.

I SHALL commence to-day's lecture, gentlemen, with a few observations on that rheumatic affection of the joints, to which I shall give the name of *arthritic rheumatism*. You will meet, in practice, with cases of arthritic rheumatism attended with fever, where, after the violent inflammatory symptoms have subsided, the arthritic inflammation will continue to wander from joint to joint, sometimes almost entirely vanishing, and then again reappearing. You entertain hopes of getting your patient over the disease, and he is indeed better; but, on your next visit, you find that the pain has fixed itself—suppose in the wrist joint. If such a pain as this should appear while the acute symptoms are present, besides the general remedies you will employ local means of relief; and some persons, as for instance, Dr. Elliotson, would make cold applications to the part: but this I do not approve of, nor would I recommend you to practise it. However, generally speaking, your treatment consists in leeching the affected part, the internal exhibition of colchicum, &c.

What I would urge upon your attention is, can you trust to leeches on all occasions, and at every period of the disease? No; there is a period when you must blister; there is a time when stimulant and tonic applications become indispensable. The general treatment of every case of arthritis must close with tonics. First, you pursue the antiphlogistic treatment, next you employ specific remedies, and lastly, you have recourse to tonics; and so likewise with the local applications. In the beginning, local pain, tenderness, and swelling depend on active inflammation, and yield most readily to leeching. As the disease advances, the number of leeches which each fresh appearance of local inflammation requires is comparatively less, and finally, the local affection, on its recurrence in any joint, is of such a nature, that leeching is no longer proper, while certain and almost immediate relief may be obtained from blistering. Blisters are better than leeches, not only because they possess the power of removing pain and swelling with more rapidity, but also because they do not leave the part in a weakened state. I tell you that blisters have a powerful effect in removing such pains, and that they may be used in cases of arthritis where they have not been used heretofore.

There is another practical observation on rheumatism which I made before in the hospital wards. Cases of arthritic rheumatism will come under your notice, in which the pain and fever are, from the beginning, accompanied by sweating, and this sweating is not attended with any relief; the pulse remains quick, the fever persistent, and the pain undiminished. This sweating, be assured, never tends either to diminish fever or relieve pain; and this is the kind of arthritis which is most apt to terminate in confirmed affections of the joints, and may last for life. From my experience elsewhere, and from the observations I have made in the Hospital for Incurables, I have remarked that most of those persons whose limbs are permanently stiff, or even distorted

from rheumatic affections, have been suffering for years under this sweating arthritis. In one of the patients at that institution a curious effect followed this disease. The sweating was general over his body at first, but after some time it declined in the lower extremities, which seemed incapable of sweating any longer. The cuticle over these parts began to exfoliate and become dry and rigid. A still further change took place, and the lower extremities became covered with ichthyosis. He lies in bed on his back in a helpless state, his legs and thighs covered with a horny unyielding cuticle, but his breast and face continue to sweat profusely as before.

Bear in mind, therefore, that this form is liable to terminate, as I mentioned before, in incurable arthritis. Some of the senior students may, perhaps, recollect a poor man in the chronic ward of this hospital, who laboured for month after month under this torturing malady. He lay in a corner in this state, and it was a subject of constant regret to every body to see him in this pitiable condition without any prospect of relief. Practitioners are apt to make a mistake in the treatment of this disease. They find the pulse quick but very seldom strong, and rather forbidding than indicating the abstraction of blood. How are you to treat such cases? By the use of the lancet. Begin, however, cautiously; take away, at first, about five or six ounces of blood, and observe what effect this produces. If your patient's pulse is improved, his pain lessened, and the sweating diminished, you are encouraged then to bleed more boldly. Venesection is here our sheet anchor. You have seen how much relief it gave the man above stairs, and what a remarkably buffy coat his blood presented. His sweating was diminished considerably by this means; and did you remark how I got rid of this symptom entirely? By giving him minute doses of tartar emetic and opium. He had a mixture composed of half an ounce of the solution of tartarized antimony, and half a drachm of tincture of opium in sixteen ounces of water; of this he took half an ounce every hour. It is hard to account for this, but it is a fact, that in some cases of chronic sweats, particularly those which attend hectic fever, you can put a stop to them by giving a few grains of Dover's powder at bed-time.

There is another very remarkable case at present in the house which bears upon the observations I have been now making; I allude to the patient with sweating arthritis, to whom I drew your attention this morning. This poor man, who is somewhat advanced in life, has been labouring for several months under inflammation of the joints of a rheumatic character, manifesting itself by pain, stiffness, swelling, and probably some slight effusion into the synovial membranes. These symptoms were accompanied by profuse and constant perspirations, with a tendency to diarrhoea—circumstances which caused a manifest deterioration of his health and strength; he became pale, cachectic, and emaciated. His case has been very tedious and intractable; he had been a long time in the hospital, and had used all the most appropriate remedies but without any appreciable improvement; his joints remained stiff, painful, and almost useless; he was greatly reduced in strength, and entirely confined to his bed. In addition to this, his pulse continued unreduced in frequency, and this is always a bad sign; cases of rheumatic arthritis, attended with prolonged excitement of the circulation and copious sweating, are generally found to exhibit an intractable chronicity, and too often terminate in rendering the unfortunate patient a cripple for life.

Now in this case many remedies had been tried without effect, and the state of the man's constitution, combined with the circumstance of his having a tendency to bowel complaint, contributed to reduce still further the scanty

list of our remedial agents. Alterative remedies, to affect the general system, were almost entirely out of the question, and a vast number of local applications had proved unsuccessful. It occurred to me here, that some benefit might be derived from mercurial ointment, gently rubbed over the affected parts, assisting its action by the use of rollers applied round the joints. Fortunately the experiment proved successful; in the course of a week or ten days the swelling diminished considerably, the pain is nearly gone, and the power of motion is returning. His mouth has become affected, but the relief experienced appears to be proportioned not to the influence of mercury on the general system, but to its effect on each individual joint. As a proof of this, I may state that the man has been mercurialized before, but without any favourable result.

Here, gentlemen, is an important point for consideration. A patient labours under a certain number of local inflammations, for which mercury is given internally, so as to affect the mouth, but without any manifest improvement of symptoms; we afterwards try the same remedy in another form; we apply it locally, in the shape of ointment rubbed into the skin over the diseased parts, and we succeed in giving relief. This is a fact deserving of attention. You will perhaps ask me to explain this; I cannot do it; but I can bring forward many other analogous examples. If you refer to the late Mr. McDowel's valuable paper on Erysipelas, published in an early number of the *Dublin Medical Journal*, you will find that many cases of this affection derived great benefit from the use of mercurial ointment; in fact, much more than they could by giving mercury internally.

In the next place, I have met with many cases of enteritis and peritonitis where the disease continued after the system became affected by mercury; and I have observed that these cases yielded rapidly to blistering the abdomen, and dressing the raw surfaces with mercurial ointment. Sir H. Marsh and I attended a young gentleman lately, who had low fever, accompanied by a quick but feeble pulse, and great restlessness. About the tenth day his belly became tender and exquisitely painful; he had thirst, diarrhoea, and other symptoms of enteric and peritoneal inflammation. Before his illness he had been of rather delicate habit, and had further impaired his health by close study. He was therefore unfit for depletion, and of this we were convinced by the debility which followed the application of a few leeches. Under these circumstances we ordered a large blister to be applied to the abdomen, and the vesicated surface to be dressed with mercurial ointment. This proved eminently successful; the peritonitis, enteric irritation, and fever soon disappeared, and the young gentleman recovered completely.

The same thing is seen in many cases of pleuritis; the constitutional effect of mercury will fail in removing the affection of the pleura until it is applied locally. I might also refer to instances of common inflammation of the testicle, in which mercurial ointment smeared over the part has been found decidedly beneficial. It is unnecessary for me, however, to multiply examples; what I have stated gives ample proof of the utility of mercury applied locally. When I was a student, it was the fashion to scout the doctrine that any distinct effect could be produced by the local application of mercury; our teachers laid it down as an axiom, that, to produce any sensible effect, it was necessary that it should first enter the system through the lymphatics. Thus, when you rub mercurial ointment over the liver to remove hepatic derangement, they said, before it could exert any influence on the liver, it had to pass along the thoracic duct, become mixed with the circulation, and manifest its peculiar

action on the whole economy. Hence, in a case of hepatitis or testitis, it was deemed useless to apply mercurial ointment over the liver or testicle, since it had, as they expressed it, to go its round through the whole system, before it could affect either of these organs.

This reasoning has an appearance of plausibility, but it is contradicted by facts. Numerous examples might be cited to prove that the greatest advantage may be derived from the local application of mercury, independent of any effect produced by it on the general system. How often do we see an incipient bubo dispersed by mercurial frictions, before any constitutional effects occur? How frequently do we see laryngeal and hepatic inflammation relieved by the use of mercurial ointment without salivation? Do the beneficial effects, which we so often observe from the *emplastrum ammoniaci cum hydrargyro*, depend necessarily upon the mouth being affected? Is the relief which follows the use of mercurial ointment in erysipelas or testitis unattainable, unless preceded by mercurial action in the whole system? Indeed, any person who reviews this subject dispassionately, must see that the doctrine of a preliminary constitutional affection being absolutely necessary, in order to obtain the specific action of mercury on any particular organ, is wholly untenable; while, on the other hand, there is a host of evidence to prove that, locally applied, it produces a primary and distinct effect, totally independent of its action on the general economy.

Having spoken now of the utility of mercury in certain cases of rheumatic fever, where the inflammation of the joints will not yield to other means, I have to add that the hydriodate of potash has been found to be a most useful adjunct to mercury, and well calculated for following up and completing the beneficial effects produced by that remedy. In fact, in treating arthritic or rheumatic fever, when I have reduced the violence of the fever and of the inflammatory affection of the joints by means of bleeding and leeching, followed by tartar emetic or nitre, or both combined, or when, after the antiphlogistic treatment both local and general, I have produced marked alleviation of the patient's sufferings, either by the use of colchicum or by the use of mercury combined with opiates,—then, I say, we can employ the hydriodate of potash with the greatest possible advantage, as it quickly dissipates the remaining pain and swelling of the joints, and contributes powerfully to bring the disease to a speedy termination, while at the same time it greatly diminishes the danger of a relapse. I have experienced much comfort and feel much confidence in the treatment of rheumatic fever since I adopted this practice; and it now never happens to me to meet with cases which, in spite of all my efforts, become chronic, and confine the unfortunate sufferers to bed for months. You have observed recently that, in most cases of acute rheumatism affecting the joints, no matter what mode of treatment I adopt in the commencement and during the acmé of the disease, I generally complete the cure with the hydriodate of potash, beginning with doses of ten grains, which are quickly augmented to twenty or thirty grains three times a-day. It is generally given in decoction of sarsaparilla, to which some preparation of morphia forms a useful addition.

Having said so much, I shall make but a few observations on another case of rheumatic fever we had lately in hospital. The patient had at first fever and inflammation of the joints; the fever was removed by appropriate treatment, but the inflammation of the joints continued; the fever set in again, and the arthritic affection increased, and we removed both. He relapsed again, the fever re-appeared, but there was no inflammation of the joints. Here we have a man admitted with rheumatic fever and inflammation of the

joints; we try to cure the disease, and we succeed in removing the fever, but the joints remain inflamed; we remove this also, and congratulate ourselves on a recovery, and we again have fever and arthritic inflammation; we overcome this; and again a relapse comes on: but mark the difference; we have now fever, but the joints are unaffected. This is a curious circumstance, and confirms me in an opinion I have entertained for some time, that we may have rheumatic fever without inflammation of the joints.

Rheumatic fever is usually distinguished by being accompanied with pain, swelling, and redness of the joints; but I have remarked, long since, that this fever presents several other peculiarities. We have, as in other fevers, great heat, occasional tendency to sweating, and hard quickened pulse; we have the urine at first pale, then high-coloured, and the blood buffed. But we have no affection of the sensorial functions, no head-ache, and, when pain permits, rest; sleep is not proportionally impaired, the tongue is furred, but the appetite is frequently good, there is no nausea, no disgust at food. These peculiarities I have frequently remarked, but it was only lately that I became aware that this species of fever may exist without inflammation of the joints. It is well known, that the affection of the joints may exist without the fever. The combination of these two distinct, but frequently associated, affections, constitutes the disease termed rheumatic fever. This explains the reason why we must wait until a certain period, until the fever subsides, before we give tonics. We commence with antiphlogistics, then we employ specifics, such as mercury or colchicum, and afterwards we give tonics.

The case of Coghlan, who has been for some time an inmate of our chronic ward, demands a few observations. He was admitted for an attack of arthritis on the 10th of December, and since that period has been subjected to various modes of treatment. You will recollect that on his admission he stated that he had been attacked several times with rheumatic inflammation of the joints. Like most persons of his class, he has suffered greatly from repeated fits of illness, brought on by exposure to the same causes. One of the greatest misfortunes that can fall upon labouring men is a severe attack of rheumatic fever, accompanied by inflammatory affections of the joints; it not only renders them helpless and useless for a considerable time, but also in some cases leaves them cripples for life, and, in addition, the nature of their employment constantly exposes them to relapses, which at length bring on incurable affections of the joints; we have, moreover, in this young man's case, a combination not unfrequent in patients of this description, namely, the effects of cold on the chest as well as on the joints—arthritis combined with inflammation of the bronchial mucous membrane.

Now where the arthritic affection is very severe, and accompanied by high fever, the addition of bronchitis is a great aggravation. Every time the patient coughs he feels like one stretched upon the rack; at every convulsive motion of the chest a severe pang is felt in every joint, and the ordinary rate of suffering is increased to positive agony. A case of this kind is often hard to be managed, even when the disease is recent and the constitution sound; but when you have to treat a severe attack in a person who has repeatedly laboured under the disease, and whose vigour has been consequently impaired, the difficulty is greatly increased. Here much attention is required on the part of the physician. Where the combination is met with in a primary attack, I am generally disposed to regard both affections as of the same character, and not requiring any difference of treatment; I therefore attack the arthritis and the bronchitis with the same remedies, that is to say, vene-

section, leeches to the affected joints and over the chest, and large doses of nitre and tartar emetic. These remedies, however, are only calculated for the acute stage of a primary attack, and where the patient's strength is unimpaired; for when the disease is chronic, and debility present, you cannot venture on the use of large doses of tartar emetic and nitre. In such cases much benefit is derived from the use of colchicum, particularly where the patient labours under more or less fever. The following is the form which I am in the habit of using, and from which I have occasionally derived much benefit:—

R. Misturæ Amygdalarum, fʒviiij.
 Aceti Colchici, fʒss.
 Acetatis Morphæ, gr. i.
 Nitratis Potassæ, ʒss.; Fiat mistura, cujus sumat cochleare unum
 amplum omni vel secundâ quâque horâ.

In Coghlan's case we tried this mixture, with local applications to the joints and a blister to the chest, but found at the end of some days that there was no visible improvement in the patient. Now, whenever a state of things of this kind occurs, no time should be lost; for, rely on it, that where colchicum does not afford relief *in a short time*, and *in moderate doses*, there is no use in giving it a further trial. You have here to contend with two affections of a very serious character—one capable of rendering your patient a cripple for life, the other threatening him with suffocation, from an extension of the inflammation into the minute bronchial tubes—an occurrence which is most commonly followed by dangerous congestion of the lung. Under such circumstances, the only treatment you can adopt with a hope of speedy relief and ultimate success, is to lay aside all other remedies, and trust almost exclusively to the use of mercury. In cases of this kind do not hesitate a moment, but mercurialize your patient at once, if his constitution be at all capable of bearing it. The treatment which was followed in the case under consideration was this:—we gave the patient ten grains of hydrargyrum cum cretâ four times a day; and with the view of relieving pain and the irritation of the bronchial mucous membrane, he took one drop of hydrocyanic acid, and ten drops of tincture of hyoscyamus in half an ounce of almond emulsion, three times daily.

The next affection I shall draw your attention to is chronic rheumatism, of which we have a well-marked instance in the man who lies in the chronic ward immediately under the window. He complains of pain, weakness, and numbness of the lower extremities, for which he used the decoction of sarsaparilla and minute doses of corrosive sublimate, for a fortnight, without any obvious improvement in his symptoms. His complaint is of considerable duration, it being now fifteen weeks since he was first attacked. This, I need not tell you, is a very unpromising feature in his case. When rheumatism has continued for three or four months, it becomes a very intractable disease; indeed, there is scarcely any affection which tasks the ingenuity and tries the patience of a medical man more than chronic rheumatism. In this case, however, we have been so fortunate as to hit on a remedy suited to the complaint; the man has been rapidly improving within the last fortnight, and is now nearly well.

You will recollect that, when I undertook the treatment of this case, the patient was free from fever, his general health but little impaired, his pulse

tranquil, his appetite good, no remarkable tenderness or redness of the joints—in fact, nothing to indicate the existence of acute local inflammation; consequently, it would have been useless to have recourse to leeches or blood-letting, or to administer antimonials, nitre, or colchicum. In such cases as this a different line of practice must be followed; you must have recourse to stimulant diaphoretics—remedies which will increase the secretion from the skin, at the same time that they exercise a stimulating action on the nervous and capillary systems. Accordingly, we prescribed for this man the following electuary, of which he was to take a teaspoonful three times a day:—Powdered bark ʒj, powdered guaiacum ʒj, cream of tartar ʒj, flowers of sulphur, ʒss, powdered ginger, ʒj, to be made into an electuary with the common syrup used in hospitals.

The guaiacum not only acts on the nerves, tending to remove chronic pains, but also acts on the skin; you will find these, and other properties possessed by it, detailed at large in your works on *Materia Medica*. Whether given in the form of powder or tincture, it often proves an extremely useful remedy in cases of chronic rheumatism, where no symptoms of active local inflammation or general fever exist; where either of these are present, it is inadmissible. Ginger has also a stimulant effect, although its action is much more limited. It is a favourite domestic remedy, and is very frequently prescribed by our rival candidates for therapeutic celebrity—old ladies, in cases of chronic, or, as they term it, cold rheumatism; and I must confess that I have seen some benefit derived from their specific—ginger tea. With these we combined sulphur, which exerts a peculiar stimulant operation on the skin and alimentary canal. Sulphur is an extremely active remedy, and singularly penetrating in its nature, finding its way into many of the secretions and most of the tissues of the body. You will find it in the urine in the form of sulphates, and it is exhaled from the skin and mucous membrane of the bowels in the form of sulphuretted hydrogen. Having said so much respecting sulphur, you will perhaps inquire why I prescribed the bark? It is not easy to give a satisfactory explanation of this; but we know, from experience, that in cases of rheumatism, after fever and local inflammation are removed, bark and other tonics have been found extremely valuable. The cream of tartar is given with the view of tempering the other stimulant remedies, it being known to possess cooling and aperient properties. The whole form a combination which is similar in its composition to a well known popular remedy for rheumatism—the Chelsea pensioner.

Having thus explained the general tendency of these medicines, and mentioned that they are to be made up into an electuary, it only remains to speak of the effect produced, and the dose or quantity given. I have stated that the ordinary dose is a teaspoonful three times a-day; this, however, will be too much for some and too little for others. The object in every case should be to keep up a mild but steady action on the bowels, and to procure a full alvine discharge at least once a-day. If the dose mentioned already does not answer this purpose, it must be increased; if the bowels are too free, it must be diminished. You should never omit making regular inquiries after the state of the bowels, while the patient is using this electuary; for, if these matters are neglected, the patient will not obtain the full benefit to be derived from it. Besides opening the bowels, this electuary acts on the skin, and frequently causes a rapid disappearance of the disease. I need not say that, in addition to this, I ordered warm baths; they coincide in effect with the electuary, acting on the skin, and tending to relieve the rheumatic pains.

I shall now conclude with some observations on the treatment of sciatica and lumbago, affections closely allied to rheumatism. In acute and subacute lumbago and sciatica, the most approved treatment consists of antiphlogistic measures, particularly blood-letting, general and local, followed by the exhibition of antimonials and Dover's powder in proper doses. Cupping the lumbar region (when the operation is skilfully performed) deservedly enjoys a high reputation in lumbago; and if sciatica is present, the tender parts about the buttock and thigh must likewise be repeatedly cupped. In the latter case, it is requisite to have a very small scarificator, and cups of a corresponding size, so as to enable the operator to follow the track of the sciatic nerve. In Germany they generally use instruments so small, that ten or twelve of the glasses may be placed close to each other, in a line extending along the painful portion of the nerve, where it lies most superficially in the thigh. This practice deserves more general imitation in this country.

That popular remedy, a warm bath, often forms a most excellent adjuvant to these measures, and is still more efficacious when preceded by a powerful warm douche. A stream of hot water, played with considerable force against the loins, buttock, and thigh, seems to act not merely by the heat it imparts, but also by the mechanical impulse it exerts, an impulse which may be termed *water-champooing*; in Dublin such a douche and warm bath may be had at the Northumberland Buildings. The means just enumerated, combined with absolute rest in bed, will succeed in many cases; in others they will fail, and then this question arises,—what ought we to try next? In some cases I have followed the example of Dr. Percival and Dr. Cheyne, of giving two or three grains of opium in the day, combined with calomel and James's powder, and with much benefit.

In a case of lumbago and sciatica, which I treated with Mr. White, the disease at first neglected had passed from a chronic to an acute state, and had become painful to the greatest possible degree; in truth, the patient's agony was quite excruciating, and though a man of strong mind and vigorous nerves, the sweat poured down his face from the suffering he endured whenever it was necessary to move himself in bed, or even when the floor of the room was shaken by any person treading heavily.

As our patient had been repeatedly cupped, and the usual remedies had completely failed, Mr. White proposed a combination of three grains of acetate of morphia, six grains of calomel, and twelve of James's powder, divided into eight portions, one to be taken every third hour; the good effects of this combination were so striking, that I have since had recourse to it repeatedly, and there is no one remedy in which I have greater confidence. Still, however, it is liable to the objection, that it must generally be continued until the gums become tender, or even the mouth slightly sore, an objection not, it is true, of much weight in cases like the preceding, where the disease is very acute, and the patient necessarily confined to his bed; but which renders this combination quite inapplicable in sub-acute or chronic attacks, where the sufferer tries to pursue his ordinary avocations, and is necessarily exposed, more or less, to the open air; to such persons *hydriodate of potash* will prove most valuable.

I first became acquainted with the remarkable efficacy of this medicine in lumbago and sciatica under the following circumstances. In the memorably wet month of July, 1839, I was called out of bed at midnight, to visit a lady in the country, and the vehicle sent to convey me was a hack covered car. The cushions were very damp, and I had not proceeded half a mile before I

was attacked with lumbago so severe that I could scarcely walk when I arrived at my patient's residence. Next morning I was better, having perspired much during the night ; but still the pain was troublesome, and as the season continued unusually cold and wet, (indeed, it scarcely ever stopped raining from the 8th of July, 1839, to the 19th of February, 1840,) and as my duties exposed me much to the weather, and prevented me from giving myself the necessary rest, my lumbago continued to increase again, and in about a month the gluteal and sciatic nerves of the left side became engaged ; I noted particularly, that the pain spread very gradually downwards from the lumbar region, so that it took a week or ten days to arrive at the ham, and still a longer time at the ankle ; I was then quite lame of the left leg, suffered much pain in bed, and had become so helpless, that I had to get my servant to draw on my stockings; during all this time my general health was perfect ; appetite good ; digestion regular ; and no deviation of the urine from the natural appearance. I mention this, because several of my medical friends advised me to take antibilious aperients, an advice founded on Abernethy's doctrine, that many local affections proceed from stomach derangement.

I was at last forced to try something for my relief, and had myself cupped, and tried the warm douche and Dover's powder, but without any good effects. I began now to fear that I should be forced to give up all professional business, and confine myself to the house for many weeks in order to go through a mercurial course, combined with proper topical applications, when, happening to meet the late Mr. Ferguson of Kildare-street, he recommended me to try hydriodate of potash, of which he was good enough to send me a drachm dissolved in a pint of decoction of sarsaparilla. I took quarter of this daily, and may literally apply here the common phrase, that I felt each dose do me good ; in truth, the benefit I derived was perceptible hourly, and was so rapid, that in four days all traces of the lumbago were gone, and my lameness had quite ceased. I did not take more than one bottle—one drachm of the hydriodate, but the good effect continued after I had ceased taking it, and in less than a week I was perfectly well. Subsequent experience enables me to recommend this medicine strongly, in sub-acute and chronic lumbago and sciatica.

It is right to observe, that the remedy had in my own person to work against various disadvantages, for I neither relaxed from my labours, nor refrained from eating and drinking as usual. This is only another example of the many I have met, which prove how injudicious it often is, to seek the cure of local inflammations by means of lowering the whole system.

In spite of the best directed means, sciatica is very apt to become chronic, and then oil of turpentine, carbonate of iron, arsenic, extract of stramonium, corrosive sublimate, blue pill and iodine internally, blisters to the loins, thigh and calf of the leg, acupuncture, croton oil frictions, and other stimulating applications must be successively tried. On a former occasion I recommended a combination of opium, with oil of turpentine internally, and when that fails, Dover's powder, combined with sulphate of quina. I am sorry not to have it in my power to lay down any general principle which would enable you to judge in what cases each of these remedies is peculiarly indicated, for experience has not confirmed any of the rules generally relied on, and, therefore, we must content ourselves with treating these diseases empirically.

Change of climate, and the use of the Bath, Buxton, Harrowgate, and Tunbridge spa waters, have proved serviceable to many, while others have

been obliged to have recourse to the natural hot baths of Bagnères or Barèges. In very obstinate cases, the practice long adopted in the surgical wards of the Meath Hospital, is to apply the actual cautery to five or six spots along the course of the painful nerve. The application ought to be rather severe, so as to produce moderately sized sores, which must be kept open for a fortnight or three weeks by suitable dressings. This is a very painful process, and for several days after the application of the cautery, the patient suffers much, and often thinks the disease to be aggravated; after some time, however, improvement becomes perceptible; and, on the whole, I do not think any other remedy is so much to be relied on in very obstinate cases of sciatica.

An observation made by Dr. Grogan is worth recording here, as it bears on a physiological question. In a patient of his, a young man of robust constitution, who suffered for more than a year much pain from an imperfectly cured sciatica, the affected thigh and calf were much subject to spasmodic pains and muscular twitchings. These sometimes continued night and day, and in consequence of these morbid contractions constantly recurring, the muscular fibres became hypertrophied, and the whole limb became much developed, presenting a more athletic outline, and exceeding its fellow considerably in bulk. This fact, which was pointed out to me by Dr. Grogan, is very remarkable; for, in general, chronic sciatica induces a flaccid and atrophied state of buttock, thigh, and calf. In the case referred to, the hypertrophy disappeared in less than a month after the actual cautery had been applied.

As the practical physician ought not to neglect any circumstance, however trivial it may appear, which bears upon the health of his patients, the following hints should not be regarded as too trifling for notice. Persons subject to lumbago ought, as much as possible, avoid remaining for any length of time in a flexed or stooping position, particularly if exposed to cold; it is for this reason that lumbago so frequently attacks gentlemen when engaged in the act of shaving. Those who are liable to the disease, therefore, must be careful either to shave while sitting before the glass, or, if standing, let the glass be placed so high that they may stand quite straight. Again, many are attacked while drawing on their boots; this accident may be surely avoided by using boot-hooks, with shanks about fourteen inches long, so that the body and thigh may be nearly in the same line, when the effort to draw on the boot is made. Persons who are in dread of lumbago and sciatica ought always to wear stout drawers, whose waistband should be broad, and consist of a strong, warm, yet elastic material, so as to allow it to be worn very tight without inconvenience.

DISEASES OF THE BRAIN AND NERVOUS SYSTEM.

LECTURE XXXIII.

PATHOLOGY OF NERVOUS DISEASES.

BEFORE I proceed to speak of diseases of the brain and spinal cord, I wish to draw your attention generally to the pathology of nervous diseases. The subject is interesting, and one on which my opinions differ from some of those generally received. The observations I am about to make will involve the consideration of the general principles suited to guide us in the difficult study of nervous affections, rather than the description of any particular disease. In considering the symptoms that accompany diseases of the nerves, pathologists have directed their attention almost exclusively to the nervous centres, and have looked on the brain, cerebellum, and spinal cord as the parts in which the causes of all nervous disorders reside, or in which they originate. If you examine the works of Rostan, Lallemand, Abercrombie, and all those who have written on diseases of the nervous system, you will find that their inquiries consist in searching after the causes of functional changes, either in the cerebrum, cerebellum, or spinal marrow, forgetting that these causes may be also resident in the nervous cords themselves, or their extremities, which I shall call their *circumferential parts*.

When we recollect the manner in which the nervous system grows,—when we call to mind the fact that, in the development of that system during the fœtal state, the nervous extremities and trunks are formed before any traces of the brain are discernible, we must at once allow it is by no means improbable, that these parts may become incapable of discharging their functions in consequence of changes originating in themselves, and not proceeding from the nervous centres. In a word, may not the decay and withering of the nervous tree commence occasionally in its extreme branches? and may not a blighting influence affect the latter, while the main trunk remains sound and unharmed?

In fact, gentlemen, pathologists have, with respect to diseases of the nervous system, continued an error precisely similar to that which was so long prevalent with regard to diseases of the vascular system; for it is only lately that, in estimating the forces which influence the circulation in diseased parts, they have begun to appreciate the preponderating influence of the capillary vessels, independently of the heart's action and the vis a tergo. It is only lately that they have recognized the important truth, that diseased vascular action may commence in the circumference.

I am willing to allow that in most cases of general paralysis the affection of the muscular system is produced by disease of the nervous centres; yet I think it is also evident, that an injury of the extremities or circumferential parts of the nerves may cause such a derangement of their functions as to give rise to paralysis. The reason why persons seek for the explanation of paralytic symptoms by referring them to the nervous centres, rather than their peripheral extremities, is because this mode of inference accounts more satisfactorily for the simultaneous affection of many parts of the system. Thus,

if one hemisphere of the brain, or both, or if the cerebellum or spinal cord be pressed or injured, those parts which have a nervous connexion with them will experience a corresponding derangement of function. But if a process of disordered action be set up in one part of the nervous extremities, and this passes on to another part, the translation seems very strange, and you cannot easily comprehend why paralysis of one principal part will produce the same disease in another.

It has been asked, whether a local paralysis ever can, by spreading *towards the centre of the nervous system*, produce paralysis in another and a distant locality. This is a question we are not in the habit of investigating; and I think it has never been sufficiently or satisfactorily examined, considering its importance in a practical point of view, and the new light which it may throw on many of the most obscure and perplexing forms of disease. I shall endeavour to prove, first, that paralysis (from whatsoever cause it may arise) affecting one portion of the circumferential extremities of the nerves, may also affect other portions of their extremities; secondly, that pain originating in one situation may produce a similar sensation in distant parts; and, thirdly, that convulsions resulting from irritation in any part of the extremities of the nervous system may occasion a corresponding train of symptoms in other parts of the body. You perceive, gentlemen, that I have enumerated the three most remarkable symptoms resulting from the disease of the nervous system, namely, paralysis, pain, and convulsions. If I succeed in showing that each of these may be produced by causes acting on the extremities of the nervous system at a distance from the part affected, the position I have advanced will be proved.

A few days ago, happening to call at a gentleman's house, I was told by a young lady that she had wounded the inside of the ring finger with a blunt needle, and that she found in it a considerable degree of numbness and loss of sensation. I said to her, "Your little finger is also numb." You are aware these two fingers are supplied by the same branch of the ulnar nerve. Well, the little finger was really numb, as well as the finger next to it, which had been injured. What were the circumstances of the case in this instance? The side of the ring finger next to the little finger had been wounded with a blunt needle; the impression made on the nervous extremities of the side of one finger produced numbness not only in that finger, but also the same cause operated backwards, or towards the centre, so as to affect the branch given off to supply the little finger by the ulnar nerve, above the place of the wound. Here is an instance of a cause producing numbness of a particular branch of a nerve, occasioning the same affection in another branch, and giving rise to phenomena identical with those which might arise from an injury of the main branch of the ulnar nerve. This is a plain fact.

You have a case of precisely the same paralysis in a poor woman in this hospital, who has been complaining of rheumatic pains in various parts of her body. Before I had been struck by these and other instances of the same kind, I looked for the cause of this paralysis in the trunk; now I can understand how it may be in the periphery. You recollect I made some observations before on this subject, and mentioned that this numbness is frequently remarked in cases of gout and rheumatism, and that this occurrence in old persons often excites apprehensions of approaching paralysis. I have known old gentlemen so alarmed by it, as to seek medical advice; and as this affection sometimes precedes gout, and sometimes accompanies rheumatic arthritis and phlegmasia dolens, it is a fact worthy of your attention, and one

which I would recommend you to hold in memory, though I must confess I am not able to give any explanation of it. I have seen an attack of this peripheral paralysis in a gentleman of gouty habit, and heard him express a great deal of surprise when he was told by Mr. Kirby, his medical attendant, that it would usher in a fit of his complaint. This gentleman, however, after taking some warm stimulant medicine, went to bed, and next morning had a regular attack of gout.

But to return to our subject. If you make experiments by handling snow, or immersing your hands in freezing mixtures, or any fluid of very low temperature, you find that, after some time, the exposed parts lose first the power of sensation, and afterwards that of motion, and that in this way you produce a complete, though temporary, local paralysis. Of this fact you are all aware. But what bears more strongly on the subject in question is that the paralysis, thus induced, is not merely confined to the hands and fingers, but also extends to other parts. You not only have the hands and fingers numb, but also lose, in a great degree, the power of flexion and extension, which is seated in the muscles of the fore-arm, and the motions of the wrist-joint are imperfectly performed. Now all this time the muscles of the fore-arm, lying at a considerable depth, and covered by warm clothing, are protected from cold, and yet you perceive they partake in the paralytic affection of the exposed parts. Here, then, is another example of the same nature, corroborating our former position, that causes producing loss of power in one part of the extremities of the nervous system may have not merely a local influence, but also travel towards the centre and affect distant parts.

Speaking of the influence of cold on the system, I have to observe that, from the experiments made on this subject by Hunter, Edwards, Dr. Marshall Hall, and others, some instances of its effects seem very singular. One of the most remarkable is the production of paralysis, which, in most cases, is partial, but is sometimes very general without being followed by death. I remember the case of a dog, which lay buried in snow for two days, and was then taken out quite stiff and insensible, and thrown on a dunghill as if dead. After some time the poor animal gave some symptoms of reanimation, and finally recovered. The influence of cold has been alluded to by Dr. Abercrombie, and you will find that he mentions a case of paraplegia, arising from paralysis brought on by cold, which lasted for eight months. A blast of cold air on one side of the face has been known to cause paralysis and distortion of several months' duration.

Again you have, as in the case of a man in this hospital, paralysis of the lower extremities from exposing the feet to cold and wet, while employed in bailing out water in a quarry. You may have observed the same thing brought on by similar exposure in fishing or snipe shooting, and that such causes gave rise to paralysis not only in the parts subjected to the influences of diminished temperature and wet, but even extended to the nervous centres, so as to produce decided paraplegia. I was once myself exposed to a very intense degree of cold on board a ship, and observed that the sailors who had been most exposed suffered severely, and did not recover from its effects during the rest of our voyage. In fact, many months will often pass away before the symptoms arising from cold are removed, and you will find that, in addition to the case of paraplegia from cold which lasted eight months, Dr. Abercrombie mentions another in which the paralysis was permanent.

One of the most remarkable examples of disease of the nervous system commencing in the extremities, and having no connexion with lesions of the

brain or spinal marrow, was the curious *épidémie de Paris*, which occurred in the spring of 1828. Chomel has described this epidemic in the 9th number of the *Journal Hebdomadaire*, and having witnessed it myself in the months of July and August of the same year, I can bear testimony to the ability and accuracy of his description. It began (frequently in persons of good constitution) with sensations of pricking and severe pain in the integuments of the hands and feet, accompanied by so acute a degree of sensibility, that the patients could not bear these parts to be touched by the bed-clothes. After some time, a few days, or even a few hours, a diminution or even abolition of sensation took place in the affected members, they became incapable of distinguishing the shape, texture, or temperature of bodies, the power of motion declined, and finally they were observed to become altogether paralytic. The injury was not confined to the hands and feet alone, but, advancing with progressive pace, extended over the whole of both extremities. Persons lay in bed powerless and helpless, and continued in this state for weeks and even months.

Every remedy which the ingenuity of the French practitioners could suggest was tried, and proved ineffectual. In some, the stomach and bowels were deranged, and this affection terminated in a bad state of health, and even in death; in others, the vital organs, cerebral, respiratory, and digestive, were in the same state as before their illness, and their appetites were good, but still they remained paralytics. At last, at some period of the disease, motion and sensation gradually returned, and a recovery generally took place, although, in some instances, the paralysis was very capricious, vanishing and again re-appearing.

The French pathologists, you may be sure, searched anxiously in the nervous centres for the cause of this strange disorder, but could find none; there was no evident lesion, functional or organic, discoverable in the brain, cerebellum, or spinal marrow. Now, here is another remarkable instance of paralysis creeping from the extremities towards the centre; here is a paralysis affecting all parts of the extremities as completely as if it had its origin in the central parts of the nervous system, and can any one, with such palpable evidence before him, hesitate to believe that paralysis, or even hemiplegia, without any lesion of the brain or spinal cord, may arise from disease commencing and originating in the nervous extremities alone?

I may observe, *en passant*, that where paralysis simultaneously attacks the arm and leg of the same side, it arises from an impression on the nervous centres; but this I think does not hold where the paralysis is creeping, as in the case before me, which has been reported by Mr. Hudson, and was under the care of Dr. Stokes. "The patient, James Moore, was admitted on the 4th of March, labouring under paraplegia, which he attributed to cold and wet. About a month before admission he first perceived a stiffness of the great toe of the right foot; afterwards numbness and coldness of the sole, and then of the leg as far as the knee, and dragging of the limb in walking. During the progression of the disease up along the thigh, it commenced in the left foot, and, after a few days, he experienced almost complete paralysis of sensation in the right lower extremity, and a lesser degree in the left, accompanied by so much diminution of the power of motion as to render him unable to walk without support. About three weeks after the appearance of paralysis in the lower extremities, the little finger of the right hand was attacked with numbness, which passed successively to the rest, attended with some loss of the sense of touch, and power of grasping objects. He has also

had retention of urine, and the bowels were obstinately constipated. There was no tenderness of any part of the spine. He had no pain in the head. His pupils were natural, mind unaffected, pulse, sleep, and appetite also natural." Here, gentlemen, you have an instance of what I would term creeping paralysis, having its origin evidently in an affection of the peripheral extremities of the nerves.

I may now observe, that I have brought forward instances to prove that direct injury of one part of the nervous system may produce paralysis in another and distant part, but have we not also other instances? Certain substances, which produce morbid affections on the nervous system, are found to be attended with results analogous to those described. You are all aware that lead frequently brings on paralysis; that this is caused by the local application of lead, and that the effect of the local application extends chiefly to those parts to which the lead is directly applied. Thus, in painter's colic, the paralysis almost invariably begins in the hands and wrists, preceded, I will allow, in many cases, by symptoms of poisoning of the system, as shown by the tormina and affection of the intestinal canal. Dr. Bright has remarked, that in painter's colic the spine is frequently tender in the cervical region, when the upper, and in the lumbar, when the lower extremities are affected. It has been remarked, that spinal tenderness is often the consequence of disease of the extremities, and not the cause; so I think it is in painter's colic.

We found in this hospital a great number of cases in which there was paralysis of the upper extremities, without any spinal tenderness in the commencement; but when the disease had lasted for some time, the affection seemed to spread towards the spinal column. When this took place, it generally caused an aggravation of the disease; but it is no less true that we had many instances where it could not be discovered; and you are not to think that this irritation of the spinal cord should always precede the paralytic affection of the wrist and hand which is observed in painter's colic. You have seen in this hospital two cases of spinal tenderness supervening on peritonitis and acute gastric irritation, and, in fact, in every disease in which the nervous extremities, which are distributed to the parietes or viscera of the abdomen, are engaged, you find almost invariably that, after some time, there will be pain and tenderness of the spinal column as the consequence of these diseases. On the other hand, I grant that as soon as the spine becomes affected, whether the disease be tympanitis, peritonitis, or that swelling of the belly to which the name of hysterical meteorism is applied, there will be certainly an aggravation of the existing symptoms.

You perceive this conducts us to the solution of the question, how far, in the treatment of chronic complaints, are we to consider spinal neuralgia as the cause or consequence of the disease. Sometimes those troublesome hysterical affections which you are called on to treat are preceded by spinal neuralgia, but in many well-marked cases it is totally absent. I wish to call your attention to this subject, because medical men have been biased to a very considerable extent, by the statements made by Mr. Teale and others, respecting the treatment of various anomalous affections supposed to be connected with irritation in the spinal column. Every female who complains of any kind of abdominal or pectoral symptoms of an obscure nature is examined all over the spine, and if the slightest tenderness be detected, according to the practice generally pursued, you are to leech and blister her back, or to apply tartar emetic ointment.

I think I have seen injurious effects from this plan of treatment. Inquire carefully into the history of the case, and ascertain, if possible, whether it was the central or circumferential parts which were first affected, for, in the latter case, you can promise yourselves less from any local application to the spine than in the former ; whereas, in those instances where the disease has travelled from the centre to the circumference, you may hope for success from local applications. It is important to recollect, gentlemen, that violent enteritic affections may produce paralysis of the lower extremities. In the case of a young gentleman whose disease arose from obstruction in consequence of eating nuts—and to which I shall advert in a future lecture, violent enteritis and peritonitis arose, and he had two relapses ; from these he recovered with difficulty, but they left him paralytic of his lower extremities. After two months, the paralysis speedily yielded to the application of stimulating liniments. This case Mr. Kirby and Mr. Cusack saw. In another remarkable case, concerning which I was consulted by Dr. Ireland, a frequently recurring vomiting was in the end followed by paralysis of the lower extremities.

What I wish to impress upon your attention is, that pain, numbness, spasm, and loss of power from an affection of the circumferential parts of the nerves may commence in these extremities, and be propagated towards the centre, so as to be finally confounded with diseases originating in the central parts themselves. You have seen in the patient, James Moore, hemiplegia, which I am convinced had its origin in the extremities. Have you not also seen, in the cases of peritonitis, gastric irritation, and painter's cholic, a consecutive affection of the spine ? Indeed, it frequently happens that paralysis, commencing in the nervous extremities, may not only induce disease of the spine, but in time bring on disease of the brain itself. It does not follow that a fatal paralysis affecting the brain should commence in that organ. In Dr. Woolaston's case, are we to account for the occasional partial amaurosis under which he laboured for such a length of time before his death, by referring it to disease of the brain ? In consequence of a temporary paralysis of one half of the retina of each side, he saw but the halves of objects, and from this he argued that there was a semi-decussation of the optic nerves. This happened several times, but never remained any length of time, and I do not think that at that period it was proved that any disease existed in the brain.

Some time back I saw, with Dr. Brereton, a very singular example of defective vision in a wealthy bookseller, who had lost the sight of one eye from accident. This gentleman, one day, in going up a hill near Clonskeagh, remarked that where there was but one man he saw two men, but divided at the middle, as if they were cut by a vertical line into two halves. I questioned him closely on the occurrence, thinking it to be the effect of imagination, but he said this was not the case, and that he was perfectly convinced he saw double. This is but one way of accounting for this optical delusion. It is well known that when vision is much impaired, the power of seeing light often remains, when the eye cannot distinguish any particular object. A partial and temporary paralysis of the retina, in a vertical section, may have given rise to an apparent white line bisecting the object vertically. Again ; in the case of a fine young lady, whom I saw along with Dr. Beatty, amaurosis—acute, sudden, and complete—came on without any headache or cerebral symptoms being complained of. When called on to see her, I found her walking about the drawing-room, quite cheerful, and enjoying a good

appetite, but perfectly blind. After the lapse of some days, these symptoms were followed by profound coma and death.

But there are other instances more decidedly corroborative of the positions I have laid down. You all know that if a man gets a blow or cut on the forehead, which wounds or divides the frontal nerve, not only the parts which that nerve supplies become paralytic, but that also the diseased impression thus produced spreads towards the centre, affects those nerves which anastomose with the frontal, and, by means of the communication formed between the nerves of the eye-ball through the lenticular ganglion, deranges the functions of the optic nerve, and causes amaurosis. Formerly I was in the habit of giving a different account of this, and thought that because, in some of the lower classes of animals, as for instance the mole, the fifth nerve, from which the frontal is derived, is the true nerve of vision—those animals having no optic nerve*, I had found an analogy capable of giving an explanation of the fact, that injury of the frontal nerve is sometimes followed by blindness. But this, I am of opinion, cannot be the true mode of accounting for the amaurosis, as I can now readily conceive how injury of any other nerve, having communication with the optic, may spread inwards, and finally derange or destroy its functions.

You will frequently observe persons in the decline of life, who otherwise enjoy tolerable health, exhibiting, as it were, a slight shade of paralytic affection of the system, fitful and capricious in its appearance and duration, sometimes remarkable on every instance of corporal exertion, sometimes scarcely at all, presenting at one time a reiteration of successive attacks, and at another time being totally absent for months. Some cases of this kind I have studied for months, and one in particular for years. The gentleman, who was the subject of the latter, complained of barely perceptible weakness and dragging of one of his legs whenever he was tired; but if he took a glass of wine on coming home, he got quite well, and these symptoms disappeared. Matters went on this way for a considerable length of time, the paralysis being at one time in one leg, and then in the other. At last he got a paralytic stroke, which lasted for some time and then subsided. He next got confirmed paralysis of one side, and soon after this was carried off by an attack on the brain.

You will often find persons similarly affected with paralytic attacks of the extremities, at first slight and transient, but afterwards increasing in vigour and intensity, until they terminate in ramollissement or effusion. Formerly I was of opinion, that this fugitive and shifting paralysis depended upon local congestion in the brain, and others have attributed it to effusion, but this is not the fact. Persons may die after having laboured for some time under hemiplegia, and yet no trace of lesion of the cerebral mass be detected: and why? Because many of them are cases of this creeping paralysis, commencing in the peripheral extremities, and travelling gradually towards the centres of the nervous system.

It is only on the principle of there being such a disease as local paralysis

* A curious instance of the total absence, or imperfection, of a pair of nerves, is related by the Rev. Mr. Bree, in the Magazine of General History:—"A white cat, of the Persian breed, was kept in his family as a favourite. The animal was a female, quite white, and perfectly deaf. She produced, at various times, many litters of kittens, of which some were quite white, others more or less mottled, tabby, &c. But the extraordinary circumstance is, that of the offspring produced at one and the same birth, such as were, like the mother, entirely white, were, like her, invariably deaf; while those that had the least speck of colour on their fur as invariably possessed the usual faculty of hearing.

not induced by lesions of the nervous centres, that we explain the origin and nature of such cases as paralysis of the deltoid, concerning which Dr. Elliotson has made so many interesting observations. *It is by reference to this hypothesis alone that we can account for the following cases, detailed by Dr. Cooke in his admirable work on palsy :—*

“I have lately had an opportunity of seeing a case of anomalous hemiplegia attended with circumstances not less extraordinary than those above described. An officer of high rank in the army, who is now about sixty years of age, was, in the year 1795, affected with a diminution of power in the right hand. This complaint increased, notwithstanding a variety of modes of treatment, till the year 1800, when, after a course of mercury, recommended by Mr. Cline, its further progress was stopped, since which time the disease has remained stationary. The peculiar circumstances of this case are the following :—The muscles of the left arm, from the shoulder to the elbow, are much wasted, and greatly diminished in power; while the muscles of the fore-arm are not at all lessened in size, and but little in power. The state of the right side is just the reverse, the muscles of the upper arm being of their natural size, and possessing their full power; whilst those of the fore-arm are very much wasted, and their motion, especially that of the fingers, is almost entirely abolished. In all other respects this gentleman appears to be perfectly well. No cause for this disease can be assigned, nor did any method of treatment afford the smallest relief, till the mercurial course was adopted, when the progress of the disorder was arrested in the year above-mentioned. Since that time no attempts to remove the complaint have been made, yet it does not increase.

“In a late publication by Mons. Keratry, a case of general palsy is related, the circumstances of which are very extraordinary. This case is adduced with a view of showing how little residue of animal existence is sufficient for the preservation of the intelligent being. There is now living, he says, in D’Isle et Vilaine, a person who, after having been blind for ten years, lost also the sense of hearing, and in a little time afterwards became almost universally paralytic. He was entirely deprived of the use of his arms, legs, thighs, and of the whole exterior surface of the body, with the exception of a part of the face; but the power of speech, and the functions of respiration, circulation, and digestion remained. Under these deplorable circumstances, however, he is not, says Mons. Keratry, wholly without consolation, for a sort of intercourse is preserved with his family and friends, by means of characters traced on that part which still retains its sensibility, and in this state of unexampled misery he retains, in some degree, the distinguishing character of man—intelligence.”

I saw, with Sir Philip Crampton, a case of paralysis, in which the mouth was drawn upwards and to one side, accompanied by ptosis of the upper eyelid of the same side, so as to produce very great distortion. Sir Philip Crampton, with his usual decision, said, “Put a blister here and there, here and then there, and you set things to rights,” marking out, at the same time, a space over each of the principal trunks of the fifth nerve, which are expanded over the side of the face. It happened exactly as he predicted; the first blister we applied pulled up the eye-lid, the next partially rectified the distortion of the mouth, and the third made it quite straight. Now, the phenomena of this case and its treatment cannot be explained by supposing the paralysis to arise from disease of the brain; but if, on the other hand, you

consider the disease as originating in the nervous extremities themselves, how easy will it be to account for the mode of operation!

The paralysis of the insane, first described by Esquirol, and spoken of by Andral in his admirable lectures on monomania, offers another instance of creeping paralysis, of palsy travelling from the circumference towards the centre.*

This disease is most common in that species of derangement termed idiocy, and it has been remarked, that those whose insanity was caused by venereal excesses, whether males or females, by sexual connexion, or by masturbation, and those in whom it was occasioned by habits of intoxication, were the most liable to this disease. M. Esquirol also believes that it is a peculiar consequence of the abuse of mercury.

When we recollect that in idiocy there is no vascular excitement, no paroxysms of violence, no determination of blood to the head, and no headache, we must allow that this species of paralysis is of most frequent occurrence in that variety of mental alienation which is least likely to be produced by a local disease in the nervous centres, capable of giving rise to a paralytic affection of the circumferential parts. When we accurately examine the march and progress of this paralysis, we find it attended with many circumstances clearly denoting its origin in the nervous extremities, notwithstanding what some French pathologists have asserted to the contrary:—the slow manner in which it creeps from one part to another; the fact that, after the disease has occasioned an almost complete loss of power in the lower extremities, the weakness may, on some days or hours, be less remarkable or even disappear altogether; so effectually indeed, that if, for experiment, you endeavour to throw the patient down, he will give very powerful resistance. In this circumstance, says Andral emphatically we find the proof of the absence of any organic lesion.

Another proof of its not depending on any lesion of the nervous centres is derived from the very extent to which it may arrive; for, in the third stage of the disease, the paralysis is complete and general, including the four limbs, the tongue, and the voluntary muscles of the trunk. The involuntary muscles, too, especially those connected with the respiratory movements, become influenced: in this third and highest degree of the paralysis, convulsive movements may also occur, presenting the strange phenomena of the alternate paralysis, and the complete contractility of the same voluntary and involuntary muscles, and of a voluntary muscle, which is perfectly disobedient to the will, being thrown into bizarre and unwonted motion by the involuntary impulse. This fact, gentlemen, is in itself sufficient to prove the truth of the proposition I have advanced, that a morbid state of the nervous extremities is often unconnected with, and independent of, any central lesion.

In my own practice, cases of creeping paralysis corroborating this conclusion have occurred. Thus I saw, in consultation with Mr. Colles, a clergyman, all

* I think it is quite evident that many of the cases described by Rostan, as examples of creeping palsy, caused by *ramollissement* of the brain, should rather be considered as cases of disease spreading from the extremities of the nervous system to the centre. The case of the old woman, named Dassonville, related by Rostan, was clearly of this nature. She had for a year experienced sensations of numbness in the lower extremities, and a slight diminution in their muscular power, so as to cause her gait to resemble a dragging of her legs rather than walking; during this period, too, her mind was a little impaired and weakened. This series of symptoms was closed by evident inflammation of the brain, ending in coma. I cannot but consider Rostan in error when he attributes the former symptoms as produced by the same cause as the latter.

of whose extremities had gradually become affected with the slightest possible degree of paralysis, affecting both the motion and sensation, the latter rather more than the former. The progress of the disease was so irregular and gradual, it is so variable, and has now lasted so long without any further increase in its intensity, that both Mr. Collis and myself have little doubt that the disease is unconnected with any lesion of the brain or spinal marrow.

In the following interesting case the paralysis is also evidently independent of any alteration in the nervous centres. Dr. Knaggs of Mountrath had a very severe and prolonged attack of the late epidemic fever in the month of March, 1848; his life was much endangered, his head being engaged throughout, but he had no apoplectic nor convulsive fit. On recovery he found that he had almost entirely lost sensation in the ring and little fingers of the left hand, but the power of motion was complete: while in the forefinger of the same hand there was paralysis of motion, but sensation was perfect. This state continuing, he came to town a month afterwards to consult me. When I saw him, with Dr. Neligan, the paralysis of sensation and of motion was just as when he first experienced it, but he thought that he had less power in performing any delicate manipulation with the forefinger, and there was very great atrophy of all the *special* muscles of this finger, while the other muscles of the hand and arm, including those of the ring and little fingers, were not in the least wasted: thus affording a beautiful illustration of the *intimate connexion which exists between the motive power and nutrition.*

Before concluding this summary of my views on some points connected with the Pathology of the Nervous System, which I published for the first time many years since, and of the truth of which subsequent experience has fully convinced me, I cannot avoid expressing my surprise that Dr. Todd—in his admirable essay on the Pathology of the Nervous System, published in the *Cyclopædia of Anatomy*—has not noticed my observations, although it is evident from the following paragraph among others that he has arrived at the same conclusion:—"I shall here cite various facts in addition to those already adduced, which unequivocally demonstrate that a power exists in the cord of exciting movements in parts which receive nerves from it, by changes occurring in its substance, which may arise there from some modification of its nutrition developed in the cord itself, *or be excited by a stimulus brought to act upon it by afferent or sensitive nerves.*"

LECTURE XXXIV.

APOPLEXY.—PATHOLOGY OF CEREBRAL DISEASES.

GENTLEMEN,—Two persons labouring under severe cerebral disease, admitted lately into the same ward, presented a striking contrast between the symptoms by which each respectively was accompanied; in fact, so completely did these cases differ in their duration and history, that they scarcely resembled each other in anything but their fatal termination; and it was consequently expected by all who had watched their progress during life, that an examination of the brain would detect lesions of that organ as different in their nature as had been the symptoms which they had occasioned.

Such, I confess, was my own opinion, and such was the opinion of many others who have no little experience in pathology. The result, however, differed widely from our expectations, and is therefore well worthy of your attention.

As this result is in direct opposition to our preconceived opinions concerning the origin and causes of some of the most serious derangements of the cerebro-spinal functions, I must trespass on your patience while I lay before you the particulars of these cases, and the lesions observed on dissection; after which we shall compare them together, and consider what pathological and practical inferences may be drawn from them. I am more anxious to draw your attention to this subject, because many late writers on diseases of the brain affect an accuracy of diagnosis which I have found unattainable in my practice. Numerous cases, it is true, are cited by each of these authors, and are so arranged and classified that the conclusions seem to be arrived at by a perfectly fair induction, and of course command our assent on the strongest grounds, the evidence of facts. It is to be feared, however, that these facts have been too frequently warped to suit preconceived pathological arrangements, apparently founded on the basis of morbid anatomy; and I am inclined to think that a more unbiassed observer will find little cause to join the ranks of those who claim for this department of medical science a degree of accuracy almost equal to that which the unrivalled discoveries of Laennec have enabled us to attain in the diagnosis of pectoral affections. To prevent the suspicion of having accommodated the history of these cases to any opinion of my own, I shall read them out from the case-book.

Patrick Kearney, aged forty, admitted October 6th.—Has always enjoyed good health, with the exception of being subject occasionally to ill-conditioned ulcers. Three months ago, after having been subject to very violent vertigo for some time, he was attacked by slight hemiplegia of the left side, from which he recovered in three days. The vertigo, however, continued, and in walking he consequently frequently staggered, and sometimes fell, but did not become insensible; and on such occasions he was able immediately to rise from the ground without assistance. Three weeks ago he again lost the use of his left side in the evening, and says that this attack was not preceded by

head-ache. His left arm has lost the power of motion, but not of sensation. The forearm is flexed on the arm, the fingers on the hand, while the latter is bent towards the forearm. Extension of these parts could not be effected, even by the application of considerable force, and every such attempt appeared to give him pain. This flexed state seemed to arise from a permanent tonic spasm affecting the flexor muscles of these parts; and it is remarkable that it continued even when the patient was asleep. He has occasionally great trembling in this limb, but no pain. The left lower extremity is less engaged; there is no flexure, and but little trembling. Pulse ninety-two, full and soft; other functions natural.

His disease underwent no material alteration until eleven o'clock in the forenoon of the 15th October, when his respiration became suddenly stertorous, and his eyes fixed. The stertor increased, and in about ten minutes he became quite comatose, having lost all power of sense and motion, and his limbs were stiff. This fit lasted about half an hour, and on its subsiding he recovered his consciousness perfectly, but his voice was very obscure, and his articulation difficult. His whole frame, too, continued to be agitated by a nervous restlessness and tremor. In the evening he had another fit, which was not so severe as that of the morning. During the night he did not sleep a moment, but constantly cried aloud, so as to disturb the other patients, and was perpetually agitated and restless, making frequent attempts to leave his bed. At eight, a.m. on the 16th, the hemiplegia was observed to be increased, while the tonic contraction had extended to the left lower extremity. During the visit, a continued shivering affected him generally, but it seemed greater on the affected side. This rigor soon subsided. Although so agitated and restless, and although he was constantly crying out in an incoherent manner, as if from pain, yet when spoken to he answered in a perfectly rational manner, and said he had no pain in the head, nor did he lose his intellect or speech until the very moment of his death, which took place about noon on the same day. During the time which intervened between the first fit and his death, the pulse and heat of skin are noticed to have continued as before.

Examination of the body 18 hours after death.—Cadaveric stiffness inconsiderable; contraction of the left leg resolved, that of left arm remains with considerable stiffness. The vessels of the scalp contained but little blood, but on opening the cranium the sinuses of the dura mater were found much distended by fluid black blood. The vessels of the pia mater exhibited an intense congestion, being everywhere distended with dark-coloured blood. No blood was extravasated on the upper surface of the brain, neither was there anywhere a trace of sub-arachnoid serous effusion, or of puriform matter, coagulable lymph, &c. At the base of the brain a stratum of extravasated blood, in some parts very thin, but in other places two or three lines in thickness, was found at both sides of the *pons*, and occupying all the space between it and the commissure of the optic nerves; coagulated blood also existed in the fourth ventricle, and, passing by the *iter*, it so exactly occupied the third, and both lateral ventricles, that when extracted the coagula appeared like casts of these cavities. It is to be observed, however, that the blood so effused into these cavities by no means considerably distended them.

A pretty accurate account of its quantity in all may be formed from the fact, that in each of the lateral ventricles the coagulum in size and shape resembled a leech of the ordinary size, when about half filled by sucking. No rupture of the basilar or other arteries could be found; but, on examining the structure of these and the neighbouring arteries, forming the circle of

Willis, the following diseased state of their parietes was detected. The thickness of the arterial tunics was increased, and the three coats were separated from each other by areolar tissue, loose and friable in its texture ; in fact, the connexion between these coats was but trifling, and with a little care, the middle or elastic tunic could be drawn out from between the others in the form of a hollow cylinder. Between the middle and internal tunics were several patches of white opaque matter, but as yet no ossific deposition. A most minute and careful examination of the brain, cerebellum, medulla oblongata, and about one inch of the cervical spinal marrow, was next made, but not the least morbid alteration—not the least change in consistence or colour—or, indeed, in any other particular from the healthy state, could be anywhere detected. Thoracic and abdominal viscera healthy.

Before I make any remarks on this curious case, I shall read you the particulars observed during the illness of Joseph Murphy.

This young man, aged 18 years, was admitted on the 5th of November. He was a shoemaker's apprentice, and had, until the commencement of his present illness, four weeks ago, always enjoyed good health, with the exception of an incontinence of urine, which he attributed to the cruelty of his master, who only permitted him to leave his work at certain times, in consequence of which he was unable to relieve his bladder as often as nature required. About a month before his admission, having been much exposed to damp and cold air, he observed his abdomen to swell, and become painful on motion, particularly on stooping. Within the last eight days these symptoms have been much increased ; purging has supervened, and he has been attacked by an acute pain in the left hypochondrium, and such a degree of debility that he is compelled to abandon his occupation.

November 6th.—Abdomen considerably swollen ; the swelling appeared to be rather the consequence of a tympanitic distention of the intestines than of dropsical effusion ; no part of the abdomen was tender on pressure except the region of the spleen, which was obviously much enlarged. He described himself as affected with a pain which shot across the epigastrium from one hypochondrium to the other, and rendered stooping at his work extremely distressing. The patient was considerably emaciated ; appetite good ; some thirst ; tongue red and dry ; bowels free, two or three stools being passed daily ; no tenesmus ; involuntary discharge of urine ; no pain or tenderness in the region of the bladder ; pulse 120 ; sleeps well ; has no pain in the head ; no derangement whatever of cerebral or respiratory functions ; his eyes are suffused, but not weak or sore. Twenty leeches were applied to the epigastrium, and he was put on low diet.

November 7th.—Nurse states that he continued without any alteration in his symptoms until yesterday evening after supper, when, becoming very drowsy, he went to bed, and fell into what she thought was a natural sleep. This morning, however, she became alarmed at finding that she could not awake him. He is now lying in a state of deep coma, and constantly tosses his head from side to side on the pillow ; the eyes are suffused ; the pupils dilated, and totally insensible to light ; there is slight strabismus of the right eye. Skin warm ; pulse 120, hard, and somewhat full ; a rale is audible in the trachea. A vein was immediately opened, but when about three ounces of blood had been taken, the pulse became very weak, and he appeared so sunk that no more blood was drawn. The pulse shortly after regained its strength, and the tracheal rale ceased. An injection of several pints of warm water was carefully administered by means of Read's syringe, and brought

away an enormous quantity of hardened fæces. In two hours a turpentine injection was ordered. In the mean time his head had been shaved, and was kept constantly wet with towels dipped in cold water, while the actual cautery was applied to the nape of the neck, and a scruple of calomel was given, to be followed in the course of the day by a draught containing castor oil and spirits of turpentine, for the purpose of removing or diminishing the tympanitic state of the belly, which still persisted. None of these measures afforded him the least relief. The draught was no sooner swallowed than it was rejected, and the application of the cautery roused him but for a few minutes, after which he again became comatose. In the evening he had a severe fit of screaming; his pulse rose to 140, was somewhat full and hard; and his death, which took place about nine o'clock that evening, about twenty-six hours from the first appearance of the cerebral symptoms, was preceded by two or three slight convulsive fits.

Dissection 12 hours after death.—*Head*:—There was no congestion of the vessels of the scalp; on removing the calvarium, the sinuses of the dura mater were found gorged with black blood, mixed with small quantities of fibrine deprived of colouring matter. No fluid was found between the visceral layer of the arachnoid membrane and the convex surface of the brain, and not more than a teaspoonful at its base. The pia mater was excessively congested, its larger veins gorged with black blood, and their smaller branches, similarly distended, formed numerous ramifications over that membrane. In the ventricles of the brain was a small quantity of serous fluid, and a little in the third ventricle, but the quantity of serum so effused was too inconsiderable to be considered as a morbid product. The substance of the brain and cerebellum was perfectly healthy in every respect. In both this and the preceding case the brain, when cut, exhibited numerous red points, but not more than are frequently seen on the section of a perfectly healthy brain.

Thorax:—Nothing remarkable, except a considerable engorgement of the posterior portion of both lungs, owing partially to cadaveric gravitation, and partially to the effect of gravitation during the long agony preceding death. This, from affording a crepitating rale before death, and from its rendering the pendent portions of the lung impervious to the air, Laennec has termed *the pneumonia of the dying*, a term by no means applicable, for pneumonia renders the pulmonary tissue impervious, in consequence of an exaltation of the vital powers of the affected part; whereas, in the impervious pulmonary tissue just spoken of, this state arises from a decrease, a gradual cessation of the vital powers, which permits the vessels to allow the blood, in obedience to physical laws, to accumulate in the most depending part.

Abdomen:—The large intestines were flaccid and empty, and lay concealed beneath the stomach and small intestines, both of which were excessively distended with air, and presented on their serous surfaces the appearance of intense venous congestion; the veins, everywhere gorged with dark blood, were injected with this fluid to their ultimate ramifications. There was a considerable congestive redness in the mucous membrane of the stomach, and that of the small intestines was throughout their whole extent of a slate colour, evidently produced by its state of sanguineous engorgement during life; the most pendent portions of the intestinal loops were red, and still more congested, in consequence of *post-mortem gravitation*.

Having thus put you in possession of the symptoms and post-mortem appearances observed in these two cases, I shall now, gentlemen, proceed to compare them together, and afterwards examine them with reference to the opinions expressed by writers on diseases of the brain.

In the first place, no two cases could possibly differ from each other more than these in their duration, general history, and individual symptoms. In one, coma suddenly supervened without any previous warning, and persisted until death, accompanied by dilatation of the pupils, and insensibility of the retina to light. Here the derangement in the sensorial functions was quite unexpected, and there were neither hemiplegia, tonic spasms, rigors, nor successive fits of convulsions, which were the very symptoms that in the other case constituted the chief features of the disease. In the other case, too, were absent the uninterrupted state of coma, the contraction of the pupils, and the insensibility to light. The state of mind in each was strikingly different; in the one, being as it were annihilated from the very commencement, while the other patient answered questions rationally to the last. In the old man the cerebral affection had subsisted for several months; in the young man it had proved fatal in twenty-four hours.

Having formed a general comparison between the symptoms of these two cases, can we, in the lesions observed in the examination of the brain, detect the causes of the numerous and striking differences just enumerated? Most certainly not, for the morbid appearances were exactly the same in both, if we except the blood effused on the base and in the ventricles of the old man's brain. Arguing from the generally received ideas concerning the effects of such an effusion of blood, its detection in these situations would undoubtedly lead the morbid anatomist to conclude—had the bodies of both these patients been presented to him for examination—that the man in whose brain this effusion had occurred must during life have been much more likely than the other to present such symptoms as permanent coma, dilatation of the pupils, insensibility of the retina to light, &c. In fact, it is quite obvious that the post-mortem appearances would mislead him, and that the history of the cases thus formed would be extremely incorrect—symptoms being attributed to one which had only been displayed by the other. I do not mean to assert that morbid anatomists have not long ago observed that coma, dilatation of the pupils, &c., may occur without effusion, or that effusion may exist without having occasioned these very symptoms. Still, however, it cannot be denied that the cerebral mass and membranes being found in every other respect in exactly the same state in the two cases, an effusion of blood on the base and in the ventricle of one being superadded to the appearances observed in the other would be considered as constituting an important difference, increasing the probability of the occurrence of coma, &c. during the life of that patient. The cases just related exhibit striking exceptions to the justice of such a mode of argument.

Let us next, gentlemen, compare these cases with the opinions recorded by authors concerning the lesions connected with certain symptoms.

No proposition seems more universally allowed by those who profess to reduce cerebral diseases to a classification depending on evident alterations of structure, than that paralysis of one side of the body always arises from a local affection of the opposite hemisphere of the brain. This affection may either consist of an effusion of blood, a *ramollissement*, or the pressure arising from a tumour, &c.; but in all cases it is assumed that hemiplegia must be attended with and caused by some such local and evident alteration. On the other hand, general paralysis, affecting alike both sides of the body, is caused, according to most authors, by a general derangement of the cerebral circulation usually called congestion, and believed to act equally on both hemispheres. The latter species of paralysis may arise suddenly, and may be as

suddenly relieved, as it ceases when, by means of venesection, we succeed in removing the congestion that produced it.

An unbiassed attention to facts will, I think, prevent us from giving our assent to either of these propositions. In the first place, we often, in dissecting the brains of hemiplegic patients, find both hemispheres, so far as evident alteration of structure, affected exactly in the same way. This was remarkably the case in Kearney; there was no alteration in one hemisphere which did not exist in the other, and yet this man had complete paralysis of one side. It is in vain to assert that some alteration of structure existed, but escaped our notice, unless it were microscopic, for both myself and those who assisted in the dissection were too familiar with diseased appearances, and too careful in conducting the examination, to allow any difference in one hemisphere as compared with the other to escape notice. In the next place, it is by no means an unfrequent occurrence to meet with patients who, being suddenly attacked with symptoms of general determination of blood to the head—such as head-ache, tinnitus aurium, vertigo, are rendered for the time more or less completely hemiplegic, and yet recover in the course of a few minutes or hours the use of the affected side so suddenly and so perfectly, as to preclude the idea of local lesion such as could be detected by the scalpel of the anatomist. Of this I have seen several instances both in hospital and private practice, and which I cannot reconcile with the doctrines laid down by Rostan, Lallemand, and other authors.

To quote one of the many examples I myself have seen:—A man named Thomas Lynch was admitted into Sir Patrick Dun's Hospital, afflicted with symptoms indicative of cerebral disease. During his residence in the hospital he suffered four or five attacks of hemiplegia, in every respect complete, and depriving him of the use of his speech. Some of these attacks lasted only fifteen minutes, while the longest continued about an hour and a half: they ceased as suddenly as they commenced, and left no traces of hemiplegia behind them.

The circumstances of this case evidently prevent us from assigning each attack to a separate effusion of blood; for, were it owing to this cause, it would be impossible to account at once for the sudden appearance and as sudden cessation of so extensive and complete a paralysis.

Again, I have carefully watched the progress of several cases, which after months and years have finally terminated in hemiplegia, the supervention of which I had anticipated from the patients having remarked to me, that although otherwise in good health, they had more than once observed, when fatigued by exercise, that they felt a degree of weakness in one leg, the motion of which, so long as this feeling continued, they described as slightly approximating to the dragging of a half-paralysed extremity. In some this feeling was accompanied by a scarcely observable thickness of speech, and a certain confusion of mind, all of which subsided shortly on their taking rest. These persons usually complained at the same time of numbness in some part of the affected extremity, and which numbness not unfrequently was the sole symptom of these transient warnings. The remark already made with regard to Lynch's case applies more strongly here; and since the hemiplegia, when it did supervene, always affected the side in which these premonitory symptoms had been felt, we can scarcely avoid attributing both to the operation of causes the same in nature but differing in degree.

Many, I am aware, would account for the transient attacks by supposing that each was preceded by a very small effusion of blood in the opposite

hemisphere of the brain, and that the final complete hemiplegia was owing to a similar but more copious effusion. I am ready to admit the truth of this explanation in those cases where there have been several distinct attacks of paralysis, differing in intensity, all affecting the same side, and all lasting several days, or even weeks, and then *gradually disappearing*. Instances of this kind are frequent, and in such it is not unusual to find traces of those successive extravasations of blood which had caused the series of paralytic attacks; but the comparatively longer duration, and the gradual cessation of such attacks, sufficiently distinguish them from the affections above spoken of, and which are too sudden in their disappearance to admit of a similar explanation.

The manner in which the arteries of the brain communicate together renders it more difficult to conceive how local determinations of blood could occur in this organ. Still, however, such an occurrence is by no means impossible; and, did it take place, it would account for the phenomena observed. Thus, were the right side of the brain to become congested, a sudden attack of hemiplegia of the left side of the body would be produced suddenly, and would as suddenly subside on the removal of that congestion. When the congestion is violent, and affects the whole hemisphere, the paralysis will affect the whole of the opposite side, and will be intense; when, on the contrary, the congestion is inconsiderable, or else confined to particular portions of a single hemisphere, the paralysis will be in proportion less severe and less extensive. This explanation* does not appear to be inconsistent with the laws known to regulate the circulating system in other organs, for it is by no means unusual for the parts deriving their blood from one common artery to display occasionally very different degrees of sanguineous congestion, a circumstance only explicable on what appears a very tenable hypothesis—an active participation on the part of the smaller vessels and capillaries in the process by which every part of the body is supplied with blood.

Another mode of explaining the occurrence of such attacks as I have described, is to suppose that they arise from a mere functional derangement, more or less intense, of the whole or a portion of one cerebral hemisphere. This explanation would certainly account for the sudden appearance and cessation, as well as for the short duration of such paralytic affections; but I do not feel inclined to adopt it, because they are invariably accompanied by other symptoms denoting determination to the head; and also because sooner or later they usually terminate in actual extravasation of blood in the side of the brain opposite to the side of the body affected by these transitory attacks. Whatever mode of explaining the occurrence of these latter be adopted, it is important, gentlemen, to recollect that whenever they are observed, the medical attendant must be on his guard—must warn the patient's friends of his future danger, and must endeavour, by the most suitable means, to avert the tendency to cerebral congestion, and its consequence, extravasation. It is to be regretted that the latter is too often inevitable; such cases, in persons past the prime of life, being usually attended with an alteration in the texture of the arteries of the brain disposing them to rupture.

The state of these vessels in Kearney was worthy of attention, as the existence of three coats or tunics, which some have denied, to the cerebral arteries

* Rostan has advanced this explanation under the head of "Congestion cérébrale locale;" but he does not attempt to account for the manner in which these local affections are produced, nor does he sufficiently dwell on them as the frequent precursors of paralysis from extravasation on the side of the brain most prone to these local congestions.

was here demonstrated. Another symptom—tonic spasms of the affected side, formed one of the most remarkable features of this poor man's disease, and, combined with the hemiplegia, seemed to furnish indisputable evidence of some local affection of the opposite side of the brain, and yet none such was detected; the congestion of the pia mater was intense on both sides, although somewhat greater on the side opposite to the paralysis. The difference, however, was inconsiderable, and might have been occasioned by the position of the head shortly before or after death. I do not say it was so, for the position was not observed, but I mention this explanation to impress on your minds how trifling was that difference. Here, then, is a second instance of an affection permanently confined to one side of the body, without any lesion to account for it being found in the opposite side of the brain,—a fact at variance with the testimony of several systematic writers.

The tonic spasm of the paralysed extremities requires notice in another point of view, as constituting one of the chief symptoms characteristic of *ramollissement*, or at least that state of brain which finally ends in softening. The absence of any local cerebral affection in Kearney, in whom this operation had been during life so remarkably developed, is conclusive in proving that even its most extreme degree may be excited by some other cause. The same remark applies to the headache, the tingling, and the spastic pains of the affected limbs, the paralysis, and in fact to each of the whole group of symptoms which are said, when combined with the tonic spasm, to constitute indubitable evidence of *ramollissement*. I do not deny that, when associated together in the order described by Lallemand and Rostan, *they afford very strong evidence of that lesion*; but this I will assert, that I have met with several cases in which, after a careful comparison of the symptoms with the descriptions of these authors, I was induced to make the diagnosis of *ramollissement* with considerable confidence, and yet, as the result proved, erroneously. Had such mistakes occurred in my own practice only, I might possibly have believed that I had not rightly understood these celebrated pathologists, but I have witnessed similar errors committed by others so often, that I am rather inclined to doubt the general applicability and correctness of the rules laid down for recognising this lesion.

Let it not be imagined, however, that I wish to throw doubts upon the beneficial influence of morbid anatomy on the diagnosis and treatment of diseases of the brain; far be from me any such intention; my object in making these observations is not to retard, but to advance, the progress of morbid anatomy, by pointing out the errors of some generally received opinions, and thus opening the way for a renewed and unprejudiced examination of the subject. It may, indeed, be *a priori* expected, that of all organs the cerebro-spinal system must give rise to the greatest number of diseases which, without much impropriety of expression, may be termed functional, being of such a nature as to be unaccompanied by sensible changes in the matter of the diseased tissue, and consequently not entering within the province of morbid anatomy. We all know that *tetanus* may be artificially produced by irritation of the spinal cord, and consequently that inflammation reaching that part often occasions this disease. So far we obtain from morbid anatomy useful knowledge concerning the nature and treatment of certain cases of tetanus; but do we advance or retard the progress of this department of medicine, by asserting that inflammation of the spinal cord exists in every case of tetanus? So it is with those who, affecting to account for all cerebral diseases by lesions observed after death, have excited expectations in the

student, which not being in every case fulfilled, he is tempted in disgust to abandon all further investigations on the subject.

No other organ of the body, in the healthy discharge of its functions, presents such opposite states as the brain during the period of being awake and asleep, and yet we may reasonably doubt whether these states are accompanied by any physical change in the brain or its appendages, of sufficient magnitude to be within the cognizance of our senses.

Can we perceive any physical alteration in the cerebro-spinal system of an animal suddenly killed by prussic acid, or by violent concussion? and yet both these undoubtedly act on the nervous system.

Nothing proves in a more convincing manner that morbid anatomy cannot be expected to reveal the nature of all cerebral diseases, as has been too implicitly taught by many French pathologists, than its being totally incapable of suggesting or explaining the action of some of our most useful remedies. Thus, what are the physical conditions of the brain in delirium which indicate, if known, the exhibition of opium? or, in other words, why does this medicine act so much more beneficially in *delirium tremens* than in other species of delirium? What physical change does the nervous mass undergo in *chorea Sancti Viti*, which would lead us to expect such decided advantage from the carbonate of iron? What alteration of nervous structure would induce us to try the effects of arsenic in certain cases of neuralgia, or of strychnia in paralysis from lead? Would the inspection of the brain of a person labouring under sea-sickness, of itself be sufficient to prove that the only certain method of checking this vomiting is to replace the patient on *terra firma*? All these considerations, gentlemen, leave no doubt on my mind that the ancients were not so wrong as Rostan and others would have us believe, in thinking that many nervous diseases were unattended with appreciable organic changes in the nerves, or nervous centres.

The object of morbid anatomy, therefore, should be not to explain the causes of cerebral diseases, but to investigate and ascertain in what number of such diseases we may with confidence refer the origin of the symptom to evident lesions. I fear much that modern authors have not sufficiently attended to this distinction, and, consequently, have most injudiciously endeavoured to establish systems, embracing all the various diseases of the brain and spinal marrow, on the basis of morbid anatomy, a mode of proceeding injurious to the latter science, and little calculated to promote the interests of practical medicine. If other proofs of the truth of this assertion were wanting, I might appeal to the almost endless opinions lately published concerning the physical alterations of the brain supposed to produce insanity and its attendant diseases; opinions apparently supported by numerous dissections, but really too often resting upon the supposed existence of morbid appearances which are sought for with such avidity that they are *always found*!

The following case is another good example of the truth of the doctrine I have been now trying to enforce. It was one in which very long-continued epilepsy existed without any appreciable lesion of the brain or spinal marrow. Mr. A. B., the subject of the case, was visited during his long illness by a great many medical men; among the rest by Mr. Colles, Sir P. Crampton, Mr. Smyly, Dr. Lees, and myself. He died on the 27th December, 1839, aged thirty years.

He had been a very fine, robust, and intelligent boy until he was nine years old, when he unfortunately got possession of five or six hard, unripe

pears, and devoured them greedily : in a few hours he became thirsty, and drank a large quantity of buttermilk ; in the course of the evening he fell into a state of insensibility, during which he was convulsed ; a physician of great experience and judgment from Kilkenny was called in, who opened the temporal artery immediately on seeing the patient, and employed the usual means resorted to on such occasions ; notwithstanding this, the insensibility continued, and in about seven hours it was observed that a hard tumour could be felt distinctly in the epigastric region. This induced the suspicion of the presence of some undigested substance, and a strong purgative enema was therefore administered ; its effect was most satisfactory, for after the discharge of some copious stools the tumour subsided, and the boy recovered his senses. The injury inflicted on the cerebral system by this violent shock manifested itself soon after in the recurrence of the fit, and from that time forth he was subject to epileptic attacks. They annually became more frequent and more severe, but the vigour of his intellect was not impaired until after the disease had continued six years, when his mental faculties displayed a manifest dulness, and in the course of a few years more he gradually lapsed into idiocy, with however occasional gleams of reason, particularly on subjects connected with religion.

He now remained entirely in the house, and for many years had several epileptic fits daily ; the convulsive stage did not usually last more than three or four minutes, but the coma often continued nearly an hour. The disorder generally exhibited a manifestly increased severity twice a year, when the fits would return about ten times daily, and with more than ordinary violence ; after such a paroxysm had lasted about a week, it invariably terminated in outrageous madness, the appearance of which was a sure sign that the paroxysm, so far as regarded the fits, was over ; this madness was of the most violent and noisy description, and required restraint ; when it had subsided, as it usually did in about three days, he relapsed into his ordinary state with a few and comparatively slight fits daily.

Such was the course of the disease for sixteen years, during which he was most tenderly and assiduously nursed. I ought to have mentioned that a sudden and copious bleeding from the nose often took place when a fit came on ; the breathing was invariably violent, irregular, and heaving for eight or ten minutes after the convulsions had ceased, but then gradually became tranquil, and so continued for the remainder of the comatose stage. During the last five years of this gentleman's life the fits became gradually less violent, but never ceased ; for several years before his death he remained free from the attacks of madness.

In 1833, he became subject to diarrhœa, which recurred frequently, was difficult to stop, and seemed to have induced a most depraved appetite ; in fact, at certain times he would swallow every thing he could lay hold of, paper, coals, cork, lead, glass (after due mastication,) boxes of family pills, straw, bits of books, &c., &c., from none of which did he seem to sustain any permanent injury. These fits of depraved appetite used to come on at irregular intervals ; about 1833, he began to fall away in flesh, and for the last few years was pale, haggard, and emaciated. His sleep was, however, sound, and his appetite usually normal. About two months before his death the bowel complaint returned with more than its usual violence, and soon weakened him so much, that for the first time from the commencement of his illness he was confined to bed, and everything failed to check the diarrhœa, which finally proved fatal, exhibiting during its progress the usual

symptoms of chronic inflammation succeeded by ulceration of the mucous membrane of the intestines.

While the diarrhoea was on him, and indeed all through his illness (except perhaps during the convulsions), *his pulse was perfectly natural, slow, and soft*, and so continued to within two days of his decease. The respiration (with the exception formerly noted) was always perfectly natural; never in the least short or hurried, and he never had a cough until two nights before he died, when he had a violent fit of coughing which lasted a quarter of an hour, and was apparently stopped by a dose of hartshorn in water; the same happened on the following night. He was never observed on any occasion to expectorate, and never had a vestige of wheezing in his chest; in fact, he was to all appearance so free from the least suspicion of pectoral complaint, that neither I nor any one else had examined his chest for many years. It is true that ever since the first epileptic seizure he frequently complained of what he termed pain in his heart, and nineteen years ago he was blistered for it by Dr. Ryan of Kilkenny. This pain, referred invariably to the left side, used often to go away for considerable intervals, and was consequently believed to arise from a straining produced by the violence of the convulsions; during the last year of his life this pain was very constantly complained of. About three years ago I saw him for jaundice, which lasted about three weeks, and disappeared without medicine; I could not, at the time, make out the cause of the jaundice; he had no pain, no fever, no hepatitis.

The preceding history of my patient's case is imperfect, but as far as it goes its accuracy may be relied on. I am particularly anxious to impress this on your minds before I relate the result of the *post-mortem* examination, which was conducted under the most favourable circumstances, and at the express wish of the family of the deceased, by Dr. Lees and Mr. Quinan, in the presence of myself and Mr. Smyly; we had the advantage of a well-aired and admirably lighted room, and during the dissection the morning sun shone brightly on each organ in succession as we examined it; I mention these facts, lest any one should hereafter attempt to explain away the extraordinary discrepancy which this case exhibited between the symptoms observed during life and the morbid appearances discovered after death; the dissection was slowly and carefully conducted, and occupied five hours.

The following account will prove that, except ulceration of the bowels, we found nothing we expected, and many things totally unexpected.

Post-mortem examination of Mr. A. B. twenty-four hours after death.—Body emaciated to an extreme degree: the scalp, cranium, dura mater, arachnoid, pia mater, together with the cortical and medullary substance of both cerebrum and cerebellum, all perfectly healthy; a very small quantity of transparent serum was found in the ventricles; there was no notable sub-arachnoid effusion. The spinal marrow and its investments were quite normal.

The *pleura pulmonalis* of the right side was everywhere intimately adherent to the ribs; *the right lung itself was rendered quite solid by tubercles*, which occupied its whole structure, and presented themselves in every stage of development, but no tubercular cavities could be detected; many crude tubercles were scattered through the otherwise healthy tissue of the lung.

The mucous membrane of the lower third of the ilium, of the cæcum, and colon was thickened, highly vascular, and extensively ulcerated. The liver healthy, gall bladder thickened, not larger than a *walnut*, and entirely filled with a gall-stone.

This case, to which I shall again refer in my lectures on phthisis, as an example of the latent form that disease sometimes assumes, is in many respects worthy of notice ; in the first place, we have here an example of a very violent form of epilepsy lasting for twenty-one years, giving rise to fatuity, and yet the most minute examination failed to detect the least trace of organic lesion in the cerebro-spinal system. That so formidable an affection of the brain could continue for so many years, producing a daily recurrence of convulsions, a frequent return of violent mania, and a thorough dilapidation of the intellect,—that such an affection could continue, without the occurrence of any observable changes of structure, is truly surprising, and militates strongly against the doctrine on which I have already commented, of many modern pathologists, who seek to explain every derangement of cerebral function by the lesion found on dissection. I fully agree in opinion with those who maintain that epilepsy, mania, insanity, and fatuity *may* arise without being caused by appreciable changes of structure in the brain or elsewhere.

In fine, without detracting from the true value of morbid anatomy, these facts—with many others already published by various authors—prove that the attempt to connect symptoms with diseased alterations of structure is attended with many difficulties, and is often impracticable.

LECTURE XXXV.

DELIRIUM TREMENS—CHOREA—EPILEPSY.

LET me first, gentlemen, direct your attention to the case of a man above stairs, who had such a complication of affections that it is quite impossible to give his disease a name. He is, in fact, a kind of synopsis of the phlegmasiæ. You have seen him in one of the upper wards, a careless, idle, drunken vagabond, but possessed of a constitution naturally good. He had within the last few days delirium tremens, he had herpetic eruption on the face, he had violent bronchitis, severe pneumonia, inflammation of the mucous membrane of the stomach and bowels, inflammation and enlargement of the liver. Here was a complication of diseases extremely hard to treat. Such a complication exemplifies the advantage to be derived from general treatment. From an attentive consideration of the manner in which they arose, we were enabled to treat in a proper manner, and overcome these diseases.

In the first place, this man was a person of intemperate habits; he had walked about the city for two days and two nights in a state of drunkenness, exposed to rain and cold. The inflammations by which he was attacked set in simultaneously, or, at least, we cannot ascertain their date. In the mean time, in consequence of the feverish state of the system, he naturally got delirium tremens. Now I need scarcely remind you that if a man of intemperate habits gets any shock of the nervous system, he is likely to get delirium tremens. Here was a case to require accurate powers of diagnosis; it might have been the delirium of fever, or of gastritis, or of bronchitis, or of drinking. You are aware that gastritis, and fever, and bronchitis will give rise to delirium, and that it may attend typhus without inflammation of the brain or engorgement of the vascular system; but in this man's case, when we connected the disease with his habits of intemperance, and looked to the history of the case, and observed that there was nothing about the head to account for his symptoms, and from his answering rationally when asked a question, we were convinced that it was delirium tremens.

You know that there are instances of delirium from bronchitis, and it is an old opinion that this arises from the blood passing to the brain in a state not sufficiently aerated, and the same thing is adduced as the cause of pain in the head. But you know that in cholera, where the blood is scarcely aerated at all, there is very little pain in the head, and the intellect remains unaffected. Some late experiments, as those of Edwards, Dr. Marshall Hall, and those which have been made in Edinburgh by Dr. Knox, seem to oppose this theory of the noxious influence of blood not properly aerated. I think that it arises rather from engorgement, as in such cases the face is generally congested and the lips purple, and that this affection originates rather in congestion than in a venous state of the blood sent to the brain. The reason which induces me to speak of this influence of venous blood is because there are certain cases of paralysis from the action of cold on the lower extremities,

which may produce a permanent asphyxia of the parts affected. I knew a man whose fingers remained of a blue colour for five months, except when he put them into warm water.

To return to the case of William Fox. With respect to the herpetic eruption, it is not necessary that I should say much, except that you will most commonly find it combined with a feverish state of the system, which is said to be produced by cold. I shall also pass over his other diseases, and proceed to a more important point—the mode of treatment to be pursued. Here we had a number of co-existing diseases, varying in their seat and character, presenting a complexity of indications, and requiring a nice adaptation of remedial means. Fortunately everything but the delirium tremens depended on inflammation: they were all inflammatory diseases. This gave us an opportunity of employing the antiphlogistic plan of treatment, and we adopted it. Tartar emetic could not be given, in consequence of the state of his stomach and bowels; and its utility, so far as hepatitis was concerned, was extremely doubtful. It might have been prescribed for the delirium tremens with some prospect of advantage, for the delirium tremens here was accompanied by a degree of vascular excitement, for which bleeding cannot be safely employed without depressing the system; and opium is contra-indicated from its tendency to increase congestion: and, therefore, as the safest means of combating the disease, you have recourse to tartar emetic.

You begin with the tartar emetic; you then add a little opium, and thus go on gradually increasing the latter until you cease to give the former, and use opium alone. Opium, if given in the beginning, will increase the congestion and bring on subarchnoid effusion. I treated a case of delirium tremens in this way too boldly, and the man died with subarchnoid effusion; it was a lesson to me, and I would advise you to profit by my experience. Where you have congestion with this delirium, bleed or leech; and if you are doubtful of the issue of blood-letting, or convinced that it is dangerous, give tartar emetic with or without opium, according to circumstances. In the present instance there were other affections, namely, the pneumonia and bronchitis which called for the use of the lancet. We bled this man, therefore, as far as his strength would allow, and applied leeches to the epigastrium. He then got calomel in large doses without opium, in such a manner as to bring him rapidly under its influence. The manner in which I prescribed it is that which is practised by most physicians and surgeons in the East Indies. I put about a scruple of calomel on the tongue, and let the patient swallow it without any liquid, or wash it down with a little cold water.

The next case I shall call your attention to is that of a man named Reddy, aged 27; he was a workman in the porter brewery of the Messrs. Guinness, and was in the habit of consuming daily large quantities of their famous XX porter, besides whiskey. Three weeks before admission he was attacked with rheumatism in all the large joints, which, when we saw him, were swollen, red and painful; the fingers of both hands were semiflexed, and he could not bear them to be touched; his countenance was dejected, and expressive of intense suffering; pulse 72, weak but regular; heart's action normal; profuse sweating; inability to move in bed; insomnia; loss of appetite and thirst. He was bled and put on the use of calomel and opium; the quantity of opium taken daily was *four* grains.

The next day, twenty-first, pericarditis was detected. There was nothing remarkable in the signs; the mercury and opium were continued; cupping over the heart followed by blisters directed, and on the twenty-fifth saliva-

tion set in; the cardiac symptoms subsided, and the inflammation of the joints greatly disappeared. The quantity of calomel was diminished from twelve grains daily, combined with four grains of opium, to three of the former with one-fourth of the latter every second day. On the twenty-sixth the rheumatism appeared much relieved, and the pulse was 88, soft, and regular, yet there was something unusual about his appearance; his countenance was excited and his eyes bright, and on inquiry we ascertained that he had slept none during the night, and that he had raved the whole time, occasionally shouting and singing. On the twenty-seventh he was much worse, he lay quite prostrated on the bed, the upper part of the body was covered with a profuse perspiration, he had twitching of all the muscles of the face, subsultus, and tremor of lower limbs; he slept none, but raved all night, and about three o'clock, a.m. got out of bed, and endeavoured to break through a door into the adjoining ward. His tongue was dry and unsteady when protruded; he answered questions, however, rationally, and said he had *no headache*; pulse 116, very weak.

He was now ordered one grain of opium in the form of a pill every fourth hour, and four ounces of wine in the day.

On the twenty-eighth the report states that he fell asleep after the third pill, (about 11 o'clock), and did not waken for six or seven hours, when he again commenced shouting and singing, but soon became quiet, and at 8 o'clock the following day the tremors had greatly diminished; his countenance was vastly improved, skin cool, tongue steady when protruded, but dry and furred, and his intellect restored. It was found necessary to increase the wine from four to sixteen ounces since the twenty-sixth.

On the twenty-eighth all the symptoms of delirium tremens had vanished; he was free from headache, his skin cool, tongue moist, and no thirst, and the pains in the joints nearly gone.

The wine and opium were now diminished gradually, and in ten days after he was discharged perfectly cured.

The complication of delirium tremens with acute rheumatism is not by any means common; and it is remarkable that in this case the first symptoms of the affection manifested themselves the day after the quantity of opium was diminished. Can we explain this by supposing that the opium acted as a stimulant, and that being stopped suddenly, it produced the same train of symptoms that usually follow the leaving off of any strong stimulant that had previously been largely indulged in.

The explanation may seem at first plausible, but we know from experience that when opium acts *beneficially* as a remedial agent, it seldom produces any of the bad consequences that follow its exhibition in a healthy state of the body, an illustration of which this case affords: for we find that it neither occasioned headache, heat of skin, furred tongue, thirst, contracted pupil, nor acceleration of the pulse. We must, therefore, look upon the circumstance as a mere coincidence, and we can easily comprehend how delirium tremens might occur in a patient of intemperate habits during the course of a painful illness, by which he was much reduced and worn down.

Let me call your attention to some points connected with the treatment of chorea. In general chorea is a disease yielding to treatment with sufficient ease, but examples occur now and then requiring great assiduity and patience, and some which even baffle all attempts at cure. The best treatise I know

on the subject is contained in the article Chorea, in *Copland's Dictionary of Practical Medicine*.

The following case was seen by Mr. Mulock, Sir Philip Crampton, Sir Henry Marsh, and myself, and exhibits in a striking point of view the difficulties the physician has to contend with in the treatment of the aggravated form of chorea, as well as the inefficiency of some of the best reputed medicines and the striking utility of others. The young lady was attacked on the 17th of April with the first symptoms of chorea, affecting one side of the body only. In the course of twenty-four hours the peculiar motions of chorea had extended to all her limbs, and became hourly worse. For the first few days of her illness she could walk, although unsteadily, but she soon lost this power altogether, so strong and uncontrollable did the involuntary motions of her legs become. At the same time, she became incapable of raising her arms and hands, as they were perpetually jerking about in every direction. Indeed the rapidity with which the disease progressed was remarkable, for in the course of a week from its first beginning it had assumed a degree of intensity and violence which had no parallel in the experience either of Sir Philip Crampton, Mr. Colles, or Sir Henry Marsh.

When at its height the disease presented a truly appalling spectacle; every part of the system of voluntary muscles seemed to be affected; all the directing influence of volition had ceased, and the muscles every where were agitated by sudden, violent, and jerking motions, which constantly and forcibly changed the position of her limbs, throwing her into attitudes the most varied, and succeeding each other with extraordinary rapidity. Her arms were indeed thrown about with such force, that it became necessary to cover with blankets and soft padding the sides of the sofa on which she lay, and in spite of this and other precautions her limbs were soon covered with bruises. Her state was truly pitiable; one or two persons were constantly engaged in preventing her from rolling off her couch; now and then she sat up suddenly, made an involuntary effort to assume the erect position, and as suddenly flung herself down; meanwhile her limbs were flexed, extended, thrown backwards and forwards with unceasing rapidity. At one moment her hand would be struck against her head, and at the next be passed behind the back. It was almost impossible to keep her covered with clothes, for the constant motion of the limbs often tossed the sheets, blankets, and quilts off together, and not unfrequently even stripped her of her stockings.

At the height of her illness the motions of her limbs and body were quite extraordinary, and appeared to be such as could be only performed by a person whose very bones were pliant and flexible. She soon lost all power of articulation, and during a period of three weeks she was not able to put out her tongue, or speak a single word. The muscles of deglutition became engaged in the disease, but the muscular system of respiration, circulation, and digestion was unaffected throughout the disease; hence her breathing and pulse were natural, and her digestion and alvine evacuations regular. A continuance of muscular exertion, so violent although involuntary, could not fail rapidly to exhaust the system, and accordingly she lost her flesh daily, and before the middle of May, that is in four weeks, her emaciation had become extreme. Her countenance was sunk, her pulse weak, the whole surface of the body was excoriated from the friction unavoidably produced by the constant movement of both trunk and extremities.

This rendered all attempts to act on the disease through the medium of the skin quite hopeless. Leeches, plasters, blisters, liniments could not be ap-

plied ; it was even impossible to administer a lavement. During sleep, and during sleep only, had she respite from the muscular labours ; then she lay quiet. The liquor of the muriate of morphia proved very serviceable indeed in procuring sleep, and did not appear to produce headache, constipation, or any other inconvenience. I should, however, remark that her intellect was unaffected, and her head quite free from pain except for a few days previously to the occurrence of epistaxis in the beginning of the attack. Her appetite continued good throughout. The following brief sketch of this case has been given me by Mr. Mulock of Charlemont-street :—

“ S. W., aged 15, was affected with influenza in the beginning of April, and relieved in a few days ; she continued well until the 17th, when she had a slight hysteric illness, with tossing of the left hand and arm. Dr. Graves saw her on the morning of the 18th ; the disease was then manifestly an attack of chorea ; the menses had appeared about two months previously, but not afterwards : Dr. Graves ordered aloetic pills combined with calomel at night, and a brisk saline aperient in the morning. She appeared to amend for a few days in her general health, but the tossing of the limbs, &c., increased ; he then directed aloetic mixture with iron ; I should mention that the pulse was natural, and tongue not loaded. After taking these draughts for two days the countenance flushed, and she had a slight hemorrhage from the nose ; Dr. Graves left off the draughts, and ordered vegetable jellies, without either meat or wine.

“ Sir Philip Crampton saw her at this time in consultation ; he said the only case he had latterly was relieved by oil of turpentine, given in decoction of aloes ; she took two of these draughts, but they produced so much excitement, we were obliged to give them up ; the tongue became also swollen, and there was great difficulty in swallowing, indeed a person was obliged to eat before her to enable her by imitation to do so. Both sides were now affected ; liquids passed out of the side of the mouth ; it was impossible to give medicine either by enema or in pills. Dr. Colles was called in consultation ; he ordered carbonate of iron and rhubarb in the electuary : it could not be taken, though often tried. Dr. Graves then considered that medicine ordered in the form of a lozenge could be swallowed ; he thought the liquor arsenicalis in that form would be useful ; this was tried for two days and appeared to be of service, with twenty-five drops of the solution of muriate of morphia, and four drops of the oil of peppermint on sugar at night : the only time jactitation of the limbs, &c. stopped was when sleep was procured.

“ The prescription for the lozenge was :—

R Liquoris Arsenicalis, gttss. xviii.

Pulveris Gummi Arabici, ʒss.

Sacchari albi, gr. xxv.

Misce et fiat secundum artem massa.

Divide in partes sex aequales ; sumat unam ter in die.

“ The disease now appeared to be hysteria combined with chorea, as there were constant sobbing, heaving of the chest, and other hysteric symptoms, along with incessant tossing of the head, limbs, &c., and twisting of the eyes and mouth. She continued the liquor arsenicalis with muriate of morphia for three days ; she had some rest, but when not under the influence of the morphia the disease appeared unaltered. Sir Henry Marsh saw her in consultation on the 16th of May, and ordered quina with extract of stramonium, and tepid salt-water shower baths three times a day ; these were obliged to

be given while lying on a hair mattress: and to continue the anodyne at night. After taking $1\frac{1}{2}$ grains of stramonium, dilatation of the pupils took place, and it was thought prudent to leave off the medicine for some hours; the tossing of the limbs, &c., and difficulty of swallowing gradually abated.

"The form for the stramonium lozenges was:—

R Sulphatis Quinæ, gr. viij.
 Extracti Stramonii, gr. i $\frac{1}{4}$.
 Pulveris Glycyrrhizæ, gr. xv.
 Theriacæ quantum sufficit.

Fiat massa, et divide in partes quatuor. Sumat unam quater in die.

"The entire skin, previous to using the baths on the shoulders, sides, and cheeks, &c., was in such a state of irritation from the constant friction as to require to be constantly washed with Eau de Cologne.

"19th. The uneasiness was much lessened; the bath was of much service; her diet from the 14th was generous, as emaciation was extreme from the trifling sleep and constant motion; she has now taken the lozenges for eight days, and continues to improve; she can also take the bath sitting in an oval tub, which has been lined with wool and covered over with coarse cloth to prevent her hurting herself: the stramonium after the second day did not appear to affect the pupils."

In this case the failure of all remedies until we tried the shower bath and the combination of sulphate of quina and extract of stramonium, recommended by Sir Henry Marsh, was not more remarkable than the rapid improvement which took place after the new plan had been adopted; indeed, at the time I speak of, I considered her case as nearly hopeless, and believed that a few days would close the scene of her sufferings.

The shower bath was used at first warm, and then tepid. Its application was very difficult; the plan pursued was to place the patient on a large mattress covered with a blanket, where she was held by an assistant destined unavoidably to enjoy the bath along with her: other servants, mounted on chairs, then poured the water from several large watering pots, held high, on the patient beneath; when this was done, she was taken into another room, well dried, and then covered.

This operation, however troublesome, was perseveringly repeated three times daily: as she improved, the application of the shower bath was attended with less flooding of the apartment, as she could then be placed in a large stuffed tub to receive the affusion. From a careful observation of the effect of the remedies, I am inclined to attribute the improvement more to the shower bath than to the sulphate of quina or stramonium, although the effects of the latter on the system must have been powerful, for in a few hours after commencing its use her pupils were dilated to a maximum. Be this as it may, this combination of remedies produced a change the most astonishing, and she regained flesh, colour, strength, and command of her muscles so rapidly, that now but a slight vestige of the complaint remains.

The powerful effects of water, whether hot, tepid, or cold, poured on the naked skin, may be illustrated by many facts; but it is not easy to determine whether those effects are owing to the impression made on the sensation of the cutaneous nerves by the temperature of the fluid, or to the force with which it is applied to the surface. Both probably concur in making affusion of water so effectual a remedy: by means of cold affusion, hysterical fits and convulsive disease are frequently checked, and persons narcotized by opium

or prussic acid are most speedily awakened. Water applied to the surface, whether in a continued and forcible stream, as a *douche*, or in the usual manner by means of the shower bath, frequently produces much benefit in diseases, general and local, acute and chronic. The case I have just related affords an additional example of the beneficial employment of this remedy.

Since this case occurred, I was induced by the reported beneficial effects of sulphate of zinc in certain spasmodic diseases, whether of an hysterical or of a truly epileptic nature, to try its efficacy in chorea, and I can assert with confidence that no other single remedy is so generally useful. In several severe cases it has, without the aid of any other medicine, cured the patient speedily and perfectly. In one case, which I saw with Mr. Barker, it failed altogether, and so did everything we tried except opium; which, however, was only useful in so far that it procured sleep at night, without which the patient, a boy of thirteen, must have been speedily worn out, so violent and continued were the spasmodic motions of the affected limbs. In the case referred to, time gradually brought about recovery: The sulphate of zinc may be given simply dissolved in rose-water, in half-grain doses, repeated often in the day. When *tolerance* of the salt on the part of the stomach is obtained, it will be often borne to the amount of ten or fifteen grains in the day; but we must also study its effects, and use the smallest quantity that will ensure a cure.

Authors who have written on the subject of chorea agree in stating that it very seldom persists after puberty. "We see little of it," says Dr. Blackmore, "in adults, yet it will sometimes *continue* for the whole life." It appears plain, from this observation, that Dr. Blackmore had never witnessed the first access of chorea at an advanced age, and consequently I think it right to mention that Dr. Ireland consulted me formerly respecting the late Mr. Dyas, a respectable apothecary residing in Castle-street, who, when seventy years old, was attacked by chorea in as complicated a form as I ever saw. The disease was very severe, and lasted many months. Thus do diseases of the nervous system, like the waning intellect, affect a second childhood!

The following, another instance of chorea occurring for the first time in advanced life, was communicated to me by Dr. Patton of Tandragee:—

"The patient is a woman aged 50; four years since, her husband left her, and two or three of her children removed from this country to Scotland. She became much depressed in spirits, and *fretted* a good deal; she then had startings in her sleep and annoyance from flatulence, then the chorea came on at the end of a year, and continued, at first being severe, but with intermissions, during which she felt in better spirits. The approach of the attack was ushered in after each intermission, by lowness of spirits and sighing; the motions during the night and startings in sleep were not severe, but never left her completely. The disease has now (July, 1847) continued three years; the violent attacks never occur at present, but slight ones, which are always aggravated when the *moon is changing*, or when she has suffered fatigue or anxiety. She has never been epileptic or had a convulsion, is active for her time of life, and has a very healthy aspect. The catamenia ceased ten years since."

I have just now mentioned the good effects of sulphate of zinc in convulsive diseases; the following case is a good example of the benefit it sometimes produces in epilepsy:—T. A., æt. 39, unmarried, of full habit, liable for years

to bilious attacks, and suffering occasionally from hemorrhoids, which bleed at times—after labouring for several months under dyspepsia—about the end of September, 1843, being more than usually fatigued by continued mental and bodily exertion, was seized with a fit, in which he fell from his chair insensible, but was after a little while able to get up and go to his bed unassisted. He was again seized about the end of November in the morning whilst dressing, the fit continuing from about five to eight minutes, not preceded by any unpleasant feelings, nor followed by any bad consequences. About the middle of December same year, he was seized with another fit of the same kind, but of longer duration and severer character, in which the tongue was injured by the teeth; this fit was followed by great muscular soreness and lassitude, much depression of spirits, nervous anxiety, irritability of temper, and disinclination to pursue usual avocations, from the mind becoming easily fatigued and confused. In this paroxysm, as in two or three succeeding, there was frothing from the mouth, stertorous breathing, with rigidity of the muscular system, followed towards the termination by occasional twitchings of right hand and arm. In none was there from the first to the present any inclination to sleep towards the termination of the fit or afterwards, and in some time, on taxing the memory, every occurrence up to the moment of seizure, and from its termination, could be distinctly remembered. In general, the fits are immediately preceded by foolish, unconnected ideas, some muttering, a sense of suffocation, and sometimes a scream, and in some, but not all, there is seminal emission.

There was no treatment adopted till this period, when, in the last attack, from twelve to sixteen ounces of blood were taken from the arm. On consulting a medical man sometime early in February, 1844, he was ordered gamboge pill with calomel, occasionally followed by black draught, five grains of assafoetida twice daily, to use the shower-bath, and to relieve the mind as much as possible from business. After continuing this plan, which had the effect of regulating the bowels and lessening in some degree nervous irritability, without otherwise causing any great change in symptoms, until June, 1844—the attacks becoming if anything more frequent but less severe—he left home to try what change of air and variety would do; this he found of use, as the fits became less frequent as well as less severe.

At this time, while in London sometime in the end of July, 1844, he was advised to be cupped occasionally from the nape of the neck if any fulness of head was experienced; which was done four times, to about six or eight ounces each operation: to take four ounces of infusion of quassia twice daily, to act on the bowels when necessary, with the same pill as before used, to take as much walking exercise as possible, to leave off eating vegetables, to live on animal food and bread, and not to take more than two glasses of wine or half a glass of brandy and water at and after dinner. He followed this plan till September, 1844; it had the effect of giving tone to the stomach and bowels; the nervous system gradually gaining strength, with a longer intermission than any before.

But he was again seized with a severe fit in September, 1844, after which he was ordered to take sulphate of zinc made into pill with extract of gentian, and to increase the quantity as much as possible; to continue the exercise so as to reduce corpulency, and after a time to alternate the zinc with the sulphate of quina, regulating the dose of it as of the former. He began the zinc in September, 1844, in three-grain doses three times a-day, and increased it to ten; at the end of twelve weeks, during which time it was regularly taken,

he left off its use and began the quina, taking it in much the same doses, and alternating them occasionally, but taking the sulphate of zinc as the principal remedy till March, 1845.

This treatment had the effect of prolonging the next intermission till about the middle of November, at which time he had a slight attack. About that time the spasmodic action of the hand and arm (before described as occurring in the fit) now appeared during the intermissions at irregular times, often twice or thrice in the day, at others not for days together, and increased so much that it was not under the control of the will, being often obliged to grasp anything within reach; it also affected the right leg, not so powerfully however, and preceded by an unpleasant kind of shock, felt for the first time, passing through the whole system, and continuing severe till about July, 1845, from which time it began to lessen in severity and frequency, but recurs occasionally to the present. From about the second or third attack of the disease to the present, there is at uncertain periods, often twice, sometimes thrice a-day, again not perhaps for two or three days, a kind of oblivious state experienced for a minute or so, then going off without any particular results: this continues up to the present.

From the last attack which occurred in November, 1844, he had a longer interval than any since the commencement of the disease; but after using zinc and quina, as I before stated, for about six months, he got tired of them, and left off their use. They had the effect of prolonging the intervals, and in some measure lessening the fits. For some time before the zinc was left off there was felt a kind of metallic state of mouth, evidently indicating that the system was saturated with the remedy. The paroxysms have continued from the date of the last, reported in November, 1844, to the present (the last occurring 27th January, 1846) at uncertain intervals, ranging from three to five, eight, and sometimes twelve or fifteen weeks, and with varied degrees of severity.

The following are the dates of the attacks in this case, extending over a period of three years; from them you will see the effects of the sulphate of zinc in prolonging the intervals between the fits:—1843, September 26th, November 25th, December 18th; 1844, February 5th, until September 3rd, when he commenced to take the zinc, he had five fits; and from this time until February, 1846, a period of eighteen months, he had but nine fits, or one every second month, while previously he had one every month.

In another case in which I was consulted by Dr. Taylor of Bailieborough, I gave the sulphate of zinc in much larger doses, but without any evident advantage. I mention it to you chiefly as showing the quantity of this medicine that may be given without producing any injurious effects. According to Dr. Taylor's report, I recommended him on August 5th, 1845, to begin the treatment of the case, that of a young lady, by administering "one grain of the sulphate of zinc four times a-day for three days, then one grain to be added to each dose at the end of every three days, until eight grains were taken at a dose four times a-day. This course having been strictly attended to, she was able at the end of the month to take eight grains four times in the day. During this month she had four fits. About this time she complained of sickness of stomach immediately after taking the medicine, but by omitting one dose daily for one or two days she was able to take the full quantity. From the 8th of September to the 22nd of October she was occasionally able to take forty grains a-day, and had eleven fits, the majority of them of more than ordinary severity. Previous to this time I wrote to Dr. Graves on the

subject, and by his advice continued the medicine at the same rate until about the 23rd of November, when I received a letter from him in which he stated that he thought it would be injudicious to persevere longer in the use of the medicine, and that he would advise the quantity to be diminished two grains daily for a fortnight, when she should be put on the use of valerian, camphor, and aromatic spirit of ammonia, in doses sufficient to counteract the general marasmus of the system which then prevailed to a very considerable extent."

It is right that I should mention to you here that the preparations of zinc, when their use has been long continued, have been described as producing general marasmus; you should therefore be careful not to continue their administration too long; it is evident that in the case I have been now speaking of, this effect was beginning to be produced, I therefore stopped the use of the sulphate gradually.

Before concluding, I wish to lay before you the particulars of another case of epilepsy derived from the patient's own account, a gentleman of the highest talent and most accurate observation. It is an example of epilepsy depending on injury to the bones of the cranium, but not occurring for some years after the accident by which the injury was produced. The following was his statement on consulting me:—"About twenty-five years since, driving out with my servant in a gig, I suddenly lost my speech, and was conscious of it for a short time, making signs to him to drive home, and then became insensible for twenty minutes or half an hour, as I was told. After this I had repeated attacks of the same kind. Having suffered previously from intense headache and intolerance of light, I came to Dublin for advice, and consulted the most eminent physicians of the day, with little advantage, for a fortnight or three weeks, when, on going one day to meet them, I observed that a swelling and tenderness had appeared on the top of the head. This was immediately examined, and I then recollected, and told them that three or four years before I had been riding rapidly along the road, and my horse had suddenly fallen, cutting its head and not the knees, that my hat was cut and dinged, and on rising on my feet I felt dizzy and confused, from which I soon recovered. The swelling was then opened with caustic, and after some time portions of diseased bone came away. Before I came up to Dublin a seton had been tried in the neck, but with little advantage—this seems to be the commencement of my disease.

"It is at varied intervals that loss of speech and insensibility have since occurred, sometimes after years, at others three or four months, but only once or twice so soon—and then only the bewildered feel, unable to articulate or to write (which I have attempted), without the insensible state accompanying or succeeding—and in every instance relieved by the discharge of wind from the stomach; indeed, I would suggest that indigestion or gouty tendency producing flatulence may in some measure excite these attacks. Subject to uneasiness in the stomach, and anxious hurried sensation and feeling of distention, with a noise of wind passing from side to side about the region of the navel on exerting the muscles, I have felt relief from chewing a bit of ginger and swallowing it, wind immediately coming away. All these annoyances generally vanish for some time after an attack of gout, which I have had occasionally in the feet at intervals of twelve or fifteen months. Warm baths or warm water to the feet always brings on faintishness, a feverish feel, and want of rest; my appetite is perfectly good, and I walk four or five miles without any fatigue, as my general allowance of exercise; at least one mile before breakfast; the bowels at times are confined, and rest

disturbed by dreams and sudden awaking, in fact 'night mare,' and then the stomach continues uneasy till wind is expelled.

"The last attack of insensibility came on after I had gone to sleep, and I doubt whether I should have been conscious of its extent had I been alone; the following day I found one eye blackened, and a black mark or bruise on the thigh near the hip-joint. I cried out on the attack commencing, as I am informed—this was the 28th or 29th of January, and my bowels had been very irregular, with pain and uneasiness low down, griping and flatulence to a considerable extent. After this attack I felt little worse, if at all, on the following days—the tongue had been a little bitten at one side, and there was rather a stiff and cramped feel in the legs. The opening whence the bone came in the head is kept open as an issue, with a bean, and sometimes becomes inflamed and painful, and may perhaps aggravate the stomach uneasiness, but the application of lunar caustic relieves this in general. Before the headache commenced, sea-bathing and swimming agreed particularly well, but any application of cold water (except to the head) now disagrees, but I use it daily to the head and neck by sponging before dressing the issue."

LECTURE XXXVI.

PARALYSIS.

HAVING recently met with some very interesting and remarkable cases of impairment of the muscular functions of the lower extremities, I am anxious to offer a few observations on paraplegia, particularly while the subject is still fresh in my mind: you are aware that by paraplegia is meant that species of paralysis in which the lower extremities are affected—a paralysis frequently embracing loss of motion and loss of sensation in the lower extremities, accompanied, in many instances, with derangement of the muscular power of the bladder and rectum. Now, I wish you clearly to understand that it is not my intention to describe the symptoms, or discuss the causes, of those species of paraplegia which are well ascertained, and of which you will find satisfactory descriptions in your books; under this head may be classed all those cases which are produced by disease of the spinal marrow, its membranes, the vertebræ or their ligaments, and diseases directly affecting the great nerves which supply the lower extremities. All these matters have been sufficiently studied, and require no additional observations from me; my object is to elucidate some of the obscurer varieties of paraplegia. I have in the last lecture but two touched on this topic, but I have since met with many cases, and made inquiries which tend still further to illustrate the subject. Within this last month, I have had an opportunity of witnessing a very striking illustration of the fact, that injury affecting one branch of a nerve will be propagated by a retrograde action, so as to affect another and more distant branch. A young gentleman, distinguished for the extent of his classical and mathematical acquirements, and who had just succeeded in obtaining the senior moderatorship (analogous to the *wranglership* of the English universities) swallowed a small but angular piece of chicken-bone. It lodged low down in the œsophagus, and was not pushed, by means of a probang, into the stomach until after the lapse of more than an hour. Considerable inflammation of the pharynx, œsophagus, and surrounding tissues was the consequence; on the third day of his illness he got a violent, long-continued, and ague-like rigor, which terminated in a profuse perspiration, and ushered in a well-marked inflammation of the neck of the bladder.

We also find that impressions affecting the frontal branches of the fifth nerve may, by a reflex action, operate on the retina so as to cause blindness. Here the morbid action travels from the circumference towards the centre, and is again reflected towards the circumference so as to affect a separate and distinct part. Of this I lately saw a curious and instructive example. A medical student, travelling through Wales on the outside of the mail, was exposed for many hours to a keen north-easterly wind blowing directly in his face. When he arrived at the end of his journey, he found that his vision was impaired, and that every thing seemed as if he was looking through a gauze veil. There was no headache, no symptom of indigestion, to account

for this evidently slight degree of amaurosis, and yet he was recommended to use cupping to the nape of the neck, and strong purgatives. When he consulted me, which he did in the course of a few days afterwards, I at once saw that there was something unusual in the case; and, after a careful examination, I at length elicited from him the fact of his having been exposed to the influence of the cold wind. It was now apparent that the retina suffered in consequence of an impression made on the facial branches of the fifth pair. The cure was effected not by a treatment directed to relieve cerebral congestion, but by stimulation of the skin of the face, forehead, temples, &c.

It is, however, unnecessary to multiply examples to prove the truth of the proposition, that disease may commence in one portion of the nervous extremities, and be propagated towards the centre, and hence, by a reflex action, to other and distant parts. Bearing this in mind, we can explain why it is that disease commencing in one part of the system may produce morbid action in another and distant part; and it certainly appears strange that, with so many striking examples before them, pathologists should have so long overlooked this cause when seeking to explain the nature of many forms of paralysis. If certain irritations of the nervous extremities in one part of the body are capable of giving rise to a derangement in the whole system of voluntary muscles; if a local affection may become the cause of exalting and rendering irregular the functions of every muscle in the body; then, surely, it is not difficult to conceive that a cause, local as the former, and tending not to exalt but to depress the motor function of the muscles, may likewise affect not merely the nerves and muscles of the part, but also those of the whole body, or of distant organs, giving rise to paralysis.

Now, pathologists have long recognised the fact that general muscular excitement and spasm may arise from the operation of a local irritation. A man gets a contused wound on his thumb, or one of his fingers, and some superficial nerves are injured. In the course of a few days he begins to feel a degree of stiffness about the lower jaw and muscles of the neck, accompanied by a sense of constriction about the diaphragm. This increases gradually, all the muscles are thrown into a state of fixed spasm, and he gets tetanus. Here a few trifling branches of the digital nerves are injured, the morbid action is conveyed from them along the nerves of the arm to the spinal cord and brain, and is thence by a reflex action propagated all over the body. A wound in the finger causes a morbid action in its nerves, and it has been acknowledged by pathologists, that this, by acting on the brain and spinal cord, may give rise to a general morbid action of the muscular system. This being the case, there is nothing improbable in supposing that a cause affecting any portion of the branches of the nervous tree, and which produces effects of a paralytic nature, may likewise react backwards towards the nervous centres, and thence by a reflex progress may extend its influence to distant parts of the circumference.

To give another instance: how often do we see irritation commencing in the intestinal mucous membrane propagated backwards towards the brain? Take the familiar example of intestinal worms. A child labours under worms; here the irritation of the digestive mucous surface, whether it be produced by the worms or by the indigestion which accompanies them, is propagated from the stomach and bowels to the brain, and thence reflected to the voluntary muscles, causing general convulsions.

Dr. Stokes details the following case in his lectures:—"A young woman was admitted into one of the surgical wards of the Meath Hospital, for some

injury of a trivial nature. While in the hospital she got feverish symptoms, which were treated with purgatives consisting of calomel, jalap, and the *black bottle*, a remedy which deserves the name of coffin bottle, perhaps better than the pectoral mixture so liberally dealt out in our dispensaries as a cure for all cases of pulmonary disease. She was violently purged, the symptoms of fever subsided, and she was discharged. A few days afterwards her mother applied to have her re-admitted, and she was brought in again, and placed in one of the medical wards. Her state on admission was as follows :—she had fever, pain in the head, violent contractions in the fingers, and alternate contraction and extension of the wrist and fore-arm. These muscular spasms were so great, that the strongest man could scarcely control the motions of the left forearm. In addition to these symptoms she had slight thirst, some diarrhoea, but no abdominal tenderness. On this occasion a double plan of treatment was pursued, the therapeutic means being directed to the head, in consequence of the marked symptoms of local disease of the brain, and to the belly from the circumstance of abdominal derangement observed in this and her former illness.

“She died shortly afterwards with violent spasms of the head and fore-arm ; and as she presented all the ordinary symptoms of a local inflammation of the opposite side of the brain, we naturally looked there first for the seat of the disease. After a careful examination, however, no perceptible trace of disease could be found in the substance of the brain, which appeared all throughout remarkably healthy. She had all the symptoms which, according to Serres and Foville, would indicate disease of the optic thalamus or posterior lobe of the opposite side ; yet we could not find any lesion whatever of its substance, after the most careful examination. But on opening the abdomen we found evident marks of disease ; *the lower third of the ileum, for the length of six or eight inches, was one unbroken sheet of recent ulcerations.*” This case, gentlemen, you will perceive just now, bears very strongly on the subject of paraplegia arising from enteritis.

Again, how often do we see convulsions brought on in the same way by cutaneous irritation ! A child gets an attack of fever accompanied by general irritability and restlessness. During the course of the disease, the lungs become affected, and the medical attendant applies a large blister, which is left on for several hours. Next day the symptoms of nervous irritation become more violent ; the child is perfectly restless, or if it dozes for a moment, awakes screaming, and is finally attacked with general convulsions. Many other examples could be brought to support this view of the question, and prove that morbidly increased action of the whole muscular system may be excited by a cause acting merely on some insulated portion of the nervous extremities.

I think, therefore, that I am borne out by analogies, strikingly exhibited by numberless examples, in asserting that the circumference of the nervous system has been too much neglected by pathologists in their explanations of the nature and causes of paralytic affections. I have given before instances of pains commencing in particular parts of the body, and travelling back towards the spine, so as to give rise to an affection of that organ which has been too generally looked upon as the result of idiopathic disease. How often does this happen in hysteria ! How often does it occur that the organ primarily engaged in hysterical cases becomes during the attacks acutely painful, and as the disease proceeds, the pain travels back towards the spine, until at length the spinal cord itself becomes affected, and we find acute pain

and tenderness over some portion of its track ! I am fully persuaded that many modern authors who have ascribed the phenomena of hysteria and other affections to spinal irritation, have been too hasty and indiscriminate in their explanations. In the majority of cases you will find hysteric patients complain at first, not of pain in any part of the spinal cord, but in the right side in the situation of the liver, and in the region of the heart or stomach, or in the head, or the pelvic region. At this period there is seldom any tenderness over the spinal cord ; but as the disease goes on, the irritation which existed in some of the situations to which I have referred is extended to the spine, and pain and tenderness are now felt over some of the spinous processes of the vertebræ. When this has taken place, then the spinal irritation thus produced becomes itself a new cause of disease, from which as a centre the morbid influence is propagated to other organs. The profession owes much to Teale, Griffin, and other writers, who have pointed out the importance of attending to this spinal tenderness in cases of hysteria, &c. Still, however, like all those who have been employed in investigating a new subject, they have, perhaps, generalised too hastily, and have in many cases regarded this spinal tenderness as a cause, when it should have been merely considered as a consequence.

Having now endeavoured to explain some of the general principles which should guide us in the investigation of nervous diseases, I shall relate some cases of paraplegia, which, though differing in their origin as to the organ inflamed, will strike you as exhibiting a close analogy to those published by Mr. Stanley.

In November, 1832, I attended with Mr. Kirby and Mr. Cusack a young gentleman aged fourteen, who was residing at a boarding school in the vicinity of Dublin, and whose case I before cursorily referred to. He had eaten a large quantity of nuts on the eve of Allhallows, and had in consequence obstruction of the bowels, attended with sense of weight and pain of the stomach, nausea, loss of appetite, and obstinate constipation. Active purgatives of different kinds were employed without effect, and the obstruction was only removed by the use of repeated enemata, thrown up with Read's syringe, introduced as far into the cavity of the intestine as the circumstances of the case permitted. To these means, assisted by leeching and stuping, the constipation yielded : but its removal was followed by symptoms of enteric inflammation, embracing not one but all the coats of the intestine—the mucous, the muscular, and certainly the peritoneal. The occurrence of a new and violent disease greatly impeded his cure ; we had a long and anxious attendance, and the young gentleman escaped with great difficulty. However, the enteric symptoms at last gave way, convalescence became manifestly established, the patient was able to sit up in his bed, and as his strength and appetite were rapidly returning, he was informed that he might get up. On attempting to leave his bed, it was found that he had lost the power of using his lower extremities—in fact, he had become paraplegic. He had perfect power over his arms and trunk, but the lower extremities were quite useless. The paralysis, however, was entirely limited to the muscles ; there was no diminution of sensibility in the limbs ; no numbness, pain, or sensation of formication ; and the muscular functions of the bladder and rectum were apparently uninjured.

Before I enter on this explanation of the case, permit me to recite the following :—I was called to visit a lady residing in the neighbourhood of Merrion-square who was said to be labouring under symptoms of dyspepsia.

She had a sense of weight about the stomach, nausea, tendency to vomit, epigastric and hypochondriac tenderness—the latter situated on the right side, but no fever nor excitement of the circulation. In the course of two or three days she became slightly jaundiced, and it was evident that the latent cause of her disease was in all probability a gastro-duodenitis, terminating in an affection of the liver. It is sufficient to say that this lady's symptoms went on, and that the diseased action gradually extended to the whole intestinal tube, liver, and peritoneum. Her bowels became tympanitic, her belly extremely tender on pressure, she got low fever, with quick pulse and great restlessness, and was saved with difficulty by the repeated application of leeches and the use of calomel, so as to affect the mouth. She became convalescent; but with the return of health it was found that she had lost the power of using her lower extremities, and she continued paraplegic for a long time.

In the case of the young gentleman already detailed, you will recollect that the paralysis was entirely limited to the muscular functions of the lower limbs, and that there was no derangement of sensation, no lesion of the muscular powers of the rectum or bladder. The same thing occurred in this case. There was in the beginning no impairment of sensibility, and the power over the rectum and bladder was uninjured. Soon afterwards, however, she complained of pains in the loins and bowels, and the muscular functions of the bladder became deranged. Indeed, the case was then unfavourable; it had resisted the ordinary remedies, and threatened to become one of confirmed paraplegia, but she began to improve in about six months, and eventually recovered completely. It is to be observed that in this lady the loss of power was much more complete than in the young gentleman before referred to; his paraplegia was by no means perfect, and yielded to the employment of stimulating frictions to the extremities, combined with a cautious use of internal stimulants and tonics. In neither of these cases was the loss of muscular power so great as to deprive the patients of the use of their legs while lying in bed. They could then be raised, flexed, and extended with apparent ease and strength; and yet, when the patient attempted to stand up or walk, he was totally unable to do either, his legs sinking under him; and even when supported by a person on each side so as to take the greater part of the weight of the body off the limbs, he was still unable to advance one foot before another. I cannot understand why so great a difference should exist between the muscular force of the legs in the one position and in the other.

Here, you perceive, we have more or less complete loss of power of the lower extremities supervening on inflammation of the gastro-intestinal mucous surface. Of this I have now witnessed several examples. How are we to account for this? In what way does paraplegia arise from inflammation of the bowels?

The mode in which I would explain this phenomenon is as follows:—The impression made by inflammatory derangement on the nervous filaments distributed to the mucous coat of the intestines is propagated to the spinal cord, and from this reacts on the muscular functions of the lower extremities. It is true that the intestines, and most of the abdominal organs, are almost exclusively supplied with nerves from the great sympathetic; but you are to recollect that these communicate by numerous branches with the spinal nerves, and that, consequently, morbid impressions made on their extremities may be rapidly and extensively propagated to the spinal cord, and from thence by a reflex action to the muscular nerves of the lower extremities. When I

first met with cases of paraplegia after inflammation of the bowels, or fever with gastro-enteric symptoms, I thought that owing to some peculiarity in the case, the great lumbar nerves had become implicated in the disease; that there was an actual inflammatory state of the neurilema, accompanied by thickening and effusion, which, by compressing the nervous matter, gave rise to the paraplegic symptoms. A more extensive view of the subject, however, has convinced me that this is not the fact; for, if it were, the affection of the nerves would naturally be attended with acute pains shooting in the direction of their course—for, as far as my experience goes, in every instance of inflammation attacking the neurilema, intense pain is felt in the parts to which the branches of the affected nerve are distributed.

Again, though this explanation might apply to cases in which the inflammation was general—as where enteric is combined with peritoneal inflammation—it would not apply to those cases in which the inflammatory action is localised. Thus, in Mr. Stanley's cases, the paraplegia supervened on inflammation principally limited to the kidneys. In seven cases detailed in Mr. Stanley's paper*, we find paralytic symptoms produced, not by any derangement commencing in the brain or spinal cord, but in consequence of an irritation having its seat and origin in the kidneys; and yet in the majority of his patients, the paraplegia was as complete as if it had been produced by idiopathic disease of the cord or its investments. What was equally remarkable, many of these cases were accompanied by spinal tenderness; so that the most experienced practitioners, on a review of the symptoms, were inclined to look upon them as cases of disease affecting the vertebræ, or the spinal cord and its sheath. Yet on dissection there was no caries of the bones; no destruction of ligaments; no remarkable vascularity, softening, or suppuration of the spinal cord; no inflammation of its membranes, or effusion in its sheath. In almost all, the morbid phenomena were confined to the kidneys; there were depositions of pus dispersed through their substance, and the mucous lining of the infundibula, ureters, and bladder was thickened and vascular. The formation of purulent matter was not, however, connected with the paraplegia, further than as being, like it, produced by the same cause—inflammation of the kidney. In one case the paraplegia was very complete, and the inflammation of the kidney had not advanced to the stage of suppuration.

There can be little doubt that others have frequently noticed the occurrence of paraplegia after inflammation of the bowels, although no author has as yet written upon the subject. It is well to be acquainted with the occasional occurrence of so untoward and obstinate a sequela of enteric inflammation, in order that we may watch attentively the state of the lower extremities immediately after the inflammation of the bowels has been subdued. As the patient in such cases has no pains in his limbs, and is not conscious of any loss of power until he attempts to stand up; and as this attempt is not usually made for many days after the subsidence of the inflammation of the bowels, in consequence of the great debility which the disease and the active treatment necessarily resorted to produce; this variety of paraplegia is very liable to be overlooked in its commencement, and is thus neglected at the very period when treatment is most likely to prove beneficial.

The foregoing observations have no doubt excited a suspicion in the minds of some of you, that the paralysis so often observed to follow painter's colic may be derived from a reaction of the nervous system of the bowels on that

* *Medico-Chirurgical Transactions*, vol. xviii. p. 260.

muscular system in general. Dr. Bright, indeed, has asserted that inflammation of the spinal marrow or sheath, as denoted by spinal tenderness, always precedes the paralysis produced by lead. It often does, but by no means constantly; for I have pointed out to you several cases in this hospital in which not the slightest vestige of spinal tenderness could be detected, either before the commencement or during the progress of the paralysis which so often follows painter's colic. I am not inclined to adopt the supposition that the paralysis in such cases is merely secondary, and the result of the intestinal irritation. I think it much more probable that it depends on the poisonous effects of the lead acting directly on the nervous system. The same observation applies to the paralysis which so often occurs as a result of large doses of arsenic. Orfila has remarked that some of the dogs he experimented on, and which narrowly escaped dying in consequence of large doses of arsenic, became, when they recovered from the immediate effects of the poison, permanently paraplegic. I look upon this paralysis as a direct consequence of the deleterious action of the arsenic on the nervous system, and not as the result of the gastro-enteritis it invariably produces. The fact, however, is well worthy of attention, that both arsenic and lead produce intestinal irritation in the first instance, and loss of muscular power in the second. A knowledge of this fact will prepare us for understanding the connexion which appears to exist between intestinal irritation and paralysis.

In a lecture published by Dr. Stokes, in the *London Medical and Surgical Journal*, he makes the following observations:—"Here, then, we have well-marked paraplegia without any perceptible organic change in the spinal cord or its investments, but presenting distinct traces of disease in the kidneys. This leads me to observe the very close connexion which exists between the kidneys and spinal cord—a connexion which has been long recognised by medical practitioners, but only in a limited point of view; for, though they were of opinion that disease of the kidneys and a discharge of ammoniacal urine were the results of spinal disease, they never seem to have reflected that the reverse of this might happen. It seems, however, now to be almost completely established, that disease of the kidneys may produce symptoms which are referable to disease of the spine. Medical men have been too much in the habit of looking at this matter only in one point of view. They know that disease of the spine will produce disease of the kidneys, and here they stop; but it has been shown that the reverse of this may happen, and that renal disease may produce very remarkable lesions in the functions of the spine. Of this very curious occurrence we have many analogies in pathology. Thus, for instance, in several cases of cerebral disease, but particularly in hydrocephalus, we have vomiting; here we have functional disease of the stomach depending on disease of the brain. Take the reverse of this,—observe the delirium which attends a case of gastro-enteritis; here you have the functions of the brain deranged in a most remarkable manner, and this produced by sympathy with an inflamed mucous membrane. The truth is, that in the spine and kidney, as well as in various parts of the body, we may have two organs so closely connected in sympathy, that disease of the one will bring on serious functional lesion of the other."

It will be seen that these observations coincide in many points with the principles I have laid down in my lecture on the subject of nervous pathology. On this point Mr. Stanley makes the following remarks:—"In reflecting on the phenomena of the first series of cases which have been detailed in this paper, it might be thought improbable that irritation, commencing in the kidney or in the bladder, should be propagated through sentient nerves to

the spinal cord, and that the impression should thence be transmitted through both the motive and sentient spinal nerves to the limbs—here occasioning an impairment both of sensation and the power of motion. Some illustration of this subject seems to be furnished by the researches of experimental physiology. If, in an animal, ‘a few seconds after it has been deprived of life, the spinal cord be then divided in the middle of the neck, and again in the middle of the back, upon irritating a sentient organ connected with either isolated segment, muscular action is produced—that is to say, a sentient organ is excited—and an irritation is propagated through the sentient nerve to the isolated segment of the spinal marrow, where it gives rise to some change which is followed by an impulse along the voluntary nerves to the muscles of the part.’* In the instances which have been adduced, irritation, commencing in the nerves of an internal organ—the kidney—has been transmitted through the spinal cord to the motive and sentient nerves of the lower extremities; but the same phenomena may occur in an opposite order, as in the case of a compound fracture or other severe injury of the lower extremity, followed by retention of urine from irritation arising in the anterior crural and ischiatic nerves, and communicated through the lumbar and sacral plexuses of spinal nerves to the nerves of the bladder. Extending these views to cases of neuralgia where there is no visible derangement of structure or other local cause of excitement, it will always be difficult to determine whether the source of irritation be in the affected nerves, or in the central portion of the nervous system whence they are derived.”

You will perceive that this explanation, as far as it goes, though not in the same words, is in meaning the same as that which I have given, with this exception—that it is only a corollary of the general principles which I had laid down in my lectures on the pathology of the nervous system. Long before the publication of Mr. Stanley’s paper, I had established the proposition that impressions made upon any portion of the nervous extremities may be propagated towards their centres, and thence by a reflex action transmitted to the nerves of other and distant parts, so as to give rise to morbid phenomena analogous to those which are produced by disease originating in the central parts themselves. Applying this principle to the subject of paraplegia, we shall find that, independently of cerebral or spinal disease, it may arise from a variety of causes, each referable to lesions commencing in distinct and isolated portions of the nervous extremities.

Thus, in Mr. Stanley’s cases, the exciting cause seems to have originated in the urinary system; in the case which I have detailed, where it supervened on inflammation of the bowels, it commenced in the digestive—and it appears from a communication made to Mr. Stanley by Mr. Hunt of Dartmouth, that the same thing may result from irritation existing in the uterine—system. Mr. Hunt alludes to several cases of disease of the uterus being followed by such loss of power in the lower limbs, that the patients were entirely confined to bed; adding that there was no change of structure in the parts to which the symptoms referred, as the source of irritation. In addition to these, I shall in my next lecture bring forward several cases to prove that a similar loss of power may be produced by the action of cold on the lower extremities. Indeed, the number of cases which I have recently met with, where paraplegia was evidently brought on by exposing the lower extremities to cold and wet, has very strongly directed my attention to this form of the disease; and I trust I shall be able, at our meeting, to communicate some very interesting matter on the subject.

* *Outlines of Human Physiology*, by H. Mayo.

LECTURE XXXVII.

PARALYSIS.

I SHALL commence this lecture by reading the following case, bearing on the subject we were last engaged considering, for which I am indebted to the kindness of Dr. Hutton :—

“Richard M‘Nab, a sailor, aged thirty-eight, was admitted into the Richmond Hospital on the 16th of January, 1835, and placed under Dr. Hutton’s care. His previous history was briefly as follows :—In the summer of 1826 he strained his back in leaping, and was confined to bed in consequence of the accident, but recovered in about twelve days. Shortly afterwards he contracted gonorrhœa, which was attended with hernia humoralis ; this yielded to repeated local bleeding, but a gleet remained, and this, after continuing for some time, disappeared under the use of sea-bathing. He then enjoyed good health, with the exception of occasional slight pain in the lumbar region, until October, 1830, when, being much exposed to cold and wet during a long and fatiguing voyage, he got an attack of piles, for which he was under medical treatment for seven months. During the continuance of this affection he first observed a frequency in micturition, but had no retention or sensible obstruction of urine.

“After recovering from the hemorrhoidal attack, he enjoyed good health until September, 1834, when, coming from Cadiz to the port of Dublin, in a very leaky vessel, he suffered greatly from cold, wet, and fatigue—being almost constantly engaged at the pumps, which could not be left for ten minutes at a time. In addition to this, being deprived of his usual allowance of spirits for thirty-two days, he found himself, on his arrival in Dublin, in a very weak state. He rested from his occupation for a fortnight after discharging his cargo, and states that during this time he drank from four to six glasses of whisky daily. He then went on board the *Elizabeth*, of London, as chief mate, but after eight or nine days his back and lower extremities became affected with pain and weakness, which increased to such a degree that he was obliged to give up his occupation on the thirteenth day. He states that, during the time his back and legs were getting weak, he was obliged to pass water about three times in an hour, which he did with pain and tenesmus. On the 1st of January the pain of his back was very severe, and he lost the use of his limbs, but not completely, for he could support himself, and even walked a little with the aid of two sticks.

“At the time of his admission he appeared somewhat broken down in his general health ; he was pale, emaciated, and laboured under derangement of his digestive organs. He suffered from occasional chills, succeeded by heats and sweating, which occurred at irregular periods ; he also laboured under incontinence of urine and dysuria, and the stream of urine was much diminished : weakness and loss of power in his lower extremities, as reported.

"His treatment was as follows :—First, cupping over the loins, then moxæ in the same situation ; attention to his digestive organs ; diluents and opiates for the urethral symptoms. On the 26th of the same month, a very close stricture was found to exist in the membranous portion of the urethra. A small catgut bougie of double length was introduced, so that one half of it projected from the meatus ; over this was slid a small gum-elastic catheter of ordinary length, and open at each end, until it traversed the stricture and reached the bladder ; the catgut bougie was then withdrawn, and the gum-elastic catheter secured. A little constitutional disturbance followed, but soon subsided, and in a few days gum-elastic catheters of a much increased size were introduced with facility.

"A very remarkable amendment took place in his back and lower extremities, in a very few days after the first introduction of the instrument ; in fact, it was almost sudden. Warm baths, friction to his limbs, &c., completed his cure. He was discharged on the 25th of February, at which time the power of his lower limbs was perfectly restored, and the symptoms affecting the urinary system had disappeared."

You at once perceive the extreme importance of this case ; it bears directly on the question I was speaking of, and proves that urethral irritation may, as well as inflammation of the kidneys, give rise to paraplegia ; and it affords another striking illustration of the general proposition which I have laid down.

In the next class of cases we have to consider, the cause of the paraplegia is extremely obscure—I mean those cases in which the paraplegia occurs during the course of fever. Here the other sufferings of the patient, and his general debility, attract our notice so exclusively, that the paralysis entirely escapes notice until convalescence is established—until, in fact, the patient wishes to support himself on his legs. He then finds, much to his surprise, that his limbs collapse under him, and that he has little or no power over them ; this appears to him the more extraordinary, on account of his having recovered a good deal of strength in his upper extremities. Thus, a Miss F. was attacked with fever while on a visit to a friend in Dublin. She was attended by Mr. Carmichael. Her fever was protracted and severe, and exhibited, during its progress, well marked symptoms of gastro-intestinal irritation and congestion, viz., tympanitis, epigastric and abdominal tenderness, &c. When her convalescence was established, her attendants found, to their great alarm, that she had no power in her legs. She complained of coldness and numbness in the lower extremities. This lady gradually recovered the use of her legs, but not until moxæ without number had been applied along the course of the spinal column. The cure lasted about a year. No evidence could at any time be detected, indicating disease of the spinal bones or ligaments. Mr. Carmichael has seen several cases of paraplegia following the remittent gastric fever of children, totally unconnected with spinal disease. Such an occurrence is most usual in children of a scrofulous temperament, and it is seldom, very seldom, remedied either by time or medicine.

Two explanations suggest themselves as capable of accounting for the paraplegia after fever. The first rests upon the frequency of the occurrence of violent pain in the small of the back in the commencement of this disease. This pain in the back is often excruciating, and generally accompanied by proportionally violent pains in the lower extremities. I am quite as anxious to relieve the pain in the back in the beginning of the fever, as I am to remove headache ; one is almost as serious as the other, for the vital importance of the spinal marrow in the economy is scarcely less than that of the brain.

In reference to this point of practice, I have been in the habit of using the expression—in order to fix the attention of my pupils—that such a patient has not any pain in his head, *but he has gotten his headache in the small of his back*. Now, when headache is the prominent feature of the first stage of fever how few will omit bleeding, leeching, cupping, cold or hot applications, &c. When, on the contrary, the lumbar spinal marrow is the seat of the congestion, how generally do practitioners neglect the application of topical bleeding, and other appropriate remedies. Were such neglect of less frequent occurrence, it is probable that paraplegia after fever would not be met with so often. Some may be inclined to look for the source of the paraplegia which follows fever in the irritation of the gastro-intestinal mucous surface, propagated by a reflex progress to the spinal marrow. It is not easy to decide between these two explanations, but I confess myself more inclined to adopt the former than the latter.

I shall now proceed to lay before you some facts and cases illustrating the nature of another form of paraplegia, a form of extreme interest, from the circumstance of its being hitherto but little understood, and not mentioned by any writer I am acquainted with, as well as from the peculiar nature of its origin and the frequency of its occurrence. I have, within a comparatively short period of time, met with several instances of this affection, and have some cases of it at present under treatment.

Before I enter on this part of the subject, I may be allowed to remark that, in some cases, loss of the power of motion in a limb can evidently be traced to the operation of a cause whose action is confined altogether to the surface. Thus, in the case of a woman in Sir Patrick Dun's Hospital, erysipelas occupied the calf and inside of the right leg, and occasioned some inflammation and tenderness along the chain of lymphatics extending to the groin, where one of the inguinal glands was slightly enlarged and painful. The erysipelas yielded to the employment of local and general remedies; but, for several days, and particularly while the disease was at its acme, she was altogether destitute of any power of motion in the affected limb; she could neither bend the leg on the thigh, nor could she raise the whole limb. This affection must have been produced by a reflex action propagated from the cutaneous branches to the larger muscular nerves. It is evident that the muscles which move the leg on the thigh could have been affected only in this way, for they lay far above the part in which the erysipelatous inflammation existed. It is in the same way that we are to account for the paralysis observed in cases of phlegmasia dolens.

Sometimes the reverse of this happens, and a single limb becomes paralysed, on account of an injury done to one of its principal nerves by the application of sudden violence, or of pressure long continued. Thus, a case was related to the late Dr. Brennan and myself, in which a robust gentleman having been much fatigued during the day, fell asleep after dinner, his head resting on his arms, which were crossed on the table. In consequence of some unfortunate awkwardness in his position, one of the ulnar nerves was compressed during the time he slept, and on awakening, his fore-arm and hand were completely powerless. Many remedies were tried in this case without success, and the paralysis continued until the day of his death, which occurred several years afterwards. A lady not long since was tripped up in walking across the floor, and fell with considerable force. The parts which sustained the principal shock were the left hip and trochanter. From the moment of the accident, she lost all power in the left lower extremity, which remained permanently paralytic. Fracture or dislocation was suspected at first, but a minute and

careful examination showed that the suspicion was groundless. No injury of the spine could be detected, and she had no numbness, pain, or formication in the affected limb. After a month she was placed under the care of Mr. Kirby, who used every topical application likely to prove useful, but without the slightest benefit. She returned to the country, where she died shortly afterwards, quite unexpectedly, in the bloom of life, and without the occurrence of a single symptom indicative of approaching danger. No autopsy was permitted.

I shall now, with the view of illustrating the form of paraplegia to which I have alluded, read the following very remarkable case, which I had an opportunity of tracing through all its stages, and which made a very considerable impression on me at the time. The history is chiefly derived from notes furnished by the patient himself before he became too weak to write; what relates to the latter stages of his complaint is taken from my own case-book.

Mr. B., aged twenty-three, was remarkably strong and healthy, though of a spare habit. He was able to take a great deal of exercise, capable of enduring much fatigue, and passionately fond of hunting, fishing, and shooting, particularly the latter; and, in pursuit of his favourite amusements, frequently exposed himself to wet feet during his excursions through bog lands, and when wading in the water. These habits, however, he laid aside after the occurrence of the first attack of his illness, which happened in 1829. He had for many years been of a costive habit, his bowels being frequently confined for a week at a time, but did not experience any sensible bad effects from this circumstance, and never took any aperient medicine.

Since the first attack in January, 1829, this state ceased, and his bowels became ever afterwards inclined to looseness, which always increased before the appearance of one of the attacks, accompanied by griping, nausea, and inclination to vomit. Each attack was generally preceded by a copious secretion of insipid watery fluid in the mouth, and then the characteristic symptoms of his disease commenced. These consisted in obstinate and protracted nausea and vomiting; he first threw up whatever happened to be on his stomach at the time, and afterwards everything he swallowed, whether solid or liquid. The matter ejected was at first acid and afterwards bitter, varying in colour from mucous to bilious, but being generally of a greenish and occasionally of a bluish tinge. The greenish fluid annoyed him much, from its extreme bitterness, and the quantity thrown up in the course of a day varied from three to four quarts of fluid. He complained also of pain, referred to the stomach or lower part of the chest, which continued throughout the attack, being most acute at its commencement; for the last year this sensation had passed into a feeling of painful constriction, which he described as a "contracted feeling of his inside," and compared it to something like the effects of a cord drawn tightly, so as to compress or strangulate his body exactly along the outline occupied by the insertions of the diaphragm. During the prevalence of the attack he had profuse perspirations, particularly towards the termination of each paroxysm.

The duration of the first attack did not exceed four or five days, after which he became quite well, and continued so for six or seven months, when his symptoms suddenly returned. He began to reject everything from his stomach as before; but in the course of a few days the vomiting disappeared, and for a considerable interval he had no return of his complaint. In the year 1830 he had three attacks of a similar description; from these he recovered also completely, and without remarking any diminution of power in his lower

extremities. In 1831, however, the disease began to assume a more serious aspect ; the paroxysms became much increased in severity, lasted longer, and recurred at shorter intervals. For one of these attacks he took mercury, and was salivated. In 1832, his symptoms became still more violent, and the duration of the paroxysms more protracted. He had one in March, a second in May, and a third in June, each of which was accompanied by some numbness and loss of power in the lower extremities ; this, however, was slight, and disappeared altogether as the vomiting subsided. About this time he noticed that his urine was scanty, and deposited more sediment than usual. He also complained of being very apt to catch cold whenever he got out of bed, and stated that he suffered occasionally from severe twitches and pains in his legs, thighs, arms, and other parts of his body, which were generally succeeded and carried off by profuse perspirations.

In August, 1832, he had a violent attack, which lasted nearly a month. The vomiting was incessant, continuing night and day, and he suffered severely from the feeling of painful constriction already described. On getting up after this attack, his legs suddenly failed him, and he dropped down on the floor quite powerless. The paralysis did not now disappear during the intervals, although it grew somewhat better after each fit of vomiting had ceased ; indeed he used to improve in his walking after the paroxysm had entirely disappeared ; and, aided by two sticks, supported himself so as to give some hopes of a recovery, until a recurrence of his attack reduced him again to a state of almost total paraplegia. His legs now began to waste sensibly, and he noticed that they had lost their feeling, and were remarkably cold. He also complained of severe twitches of pain in various parts of his body, accompanied by profuse night sweats, and turbid, scanty urine.

For some months before his death he was completely paraplegic, and continued to be attacked with violent fits of vomiting. The vomiting went on night and day, and he was unable to retain the mildest and most soothing substances for a moment on his stomach. Sir Philip Crampton and Dr. Ireland attended him with me, and we had recourse to every thing we could think of to allay the irritability of his stomach, but in vain. After continuing to resist obstinately every form of treatment for five or six days and nights, the vomiting would suddenly cease, the gentleman would exclaim, "Now I am well," and he could then eat, with perfect impunity, substances which would prove irritating and indigestible to many stomachs. This was one of the most singular circumstances I ever witnessed. The transition from a state of deadly nausea and obstinate retching to a sharp feeling of hunger used to occur quite suddenly. One hour he was the most miserable object you could behold, racked with painful constrictions across the epigastrium, alternately bathed with cold perspiration, and rejecting every thing from his stomach, the next found him eating with a voracious appetite whatever he could lay hold of, and digesting every thing with apparent facility.

It may be observed that as the disease in this case proceeded, the intervals between the attacks diminished, while the paroxysms increased in duration. For the last two years they continued only for four or five days, and appeared at intervals of six or seven months ; latterly they used to last for eight or ten days, and returned every third or fourth week. During the paroxysm the only thing which he took was a little cold water with some brandy and a few drops of laudanum, which remained longer on his stomach than anything else, and enabled him to enjoy a few minutes' sleep. He never complained of any headache, and his intellect was remarkably clear, and his memory good.

No trace of organic disease could be detected in the abdominal viscera, and there was not the slightest tenderness over any part of the spine. He also retained to the last a complete power over the bladder and rectum.

At length his system began to give way; long confinement to bed and the frequent recurrence of these exhausting attacks completely wore him out, and he sank the 30th September, 1833. A post mortem examination was allowed by his friends, and we scrutinised every part of his system with the most anxious care. The brain, cerebellum, spinal cord, and their investing membranes were carefully inspected; we examined the large nervous trunks that supply the lower extremities, inspected the viscera of the thorax, and searched for evidences of disease in the stomach and intestinal tube; we could find none. There was no lesion of the brain or spinal cord, no thickening or vascularity of membranes, the large nerves exhibited their normal condition, the stomach was perfectly healthy, the intestinal canal was natural, the liver and other glandular viscera of the abdomen without any trace of appreciable derangement.

Here, then, was a case of perfect paraplegia (I say perfect, for he had lost all power of his lower extremities for more than two months before his death), which may be fairly termed functional, inasmuch as there was no lesion of any part of the nervous centres to explain the phenomena present. How, then, are we to account for them? The first symptoms were undoubtedly those of abdominal irritation, as manifested by the tendency to diarrhœa in an originally costive habit, accompanied by violent paroxysms of vomiting which recurred at distant intervals. Are we to attribute this diseased condition of the stomach and bowels, which, from the remarkable periodicity of its occurrence, was evidently functional, to irritation, congestion, or inflammation of the brain or spinal marrow? From the data we are in possession of, it appears that this question must be answered in the negative. There was no headache, heat of scalp, throbbing of the temporal arteries, or other sign of determination to the head, of congestion or inflammation of the brain, either before or during the attacks. The patient's intellect was all throughout remarkably clear, and his memory good.

Again, if we look for the origin of the disease in the spinal cord or its investments, we can find nothing to assist in explaining the phenomena. There was no pain in any portion of the spinal cord, and at no period of his illness could we detect any tenderness over the spinous processes. The history of the case seems to prove that whatever was the cause which operated on the nerves of the stomach and intestines, it gradually extended the sphere of its morbid influence to the spinal cord, and, through it, implicated the nerves of the lower extremities. The case is in many respects highly interesting, and well worthy of the attention of the pathological inquirer. The dissection was conducted in the presence of Dr. Ireland and myself, and by Mr. Harris. It was not made in a hurried or careless manner, each organ was carefully examined, and the process occupied at least four hours.

The next case to which I shall call your attention was in the Meath Hospital under the care of Dr. Stokes.

A robust, middle-aged man was admitted into the chronic ward of the Meath Hospital, labouring under paraplegia. He stated that he was generally employed as a boatman about the river and port, was frequently exposed to cold and wet, particularly in his lower extremities, and that he was in the habit of drinking freely. He had enjoyed good health until about seven

weeks before his admission, when he was seized with numbness of the feet and legs, which, after continuing for three or four days, was followed by tingling pains running along the course of the nerves. He then remarked that the power of his lower extremities was much diminished, and this gradually increased, so as to prevent him from walking or even standing without support. His bowels became obstinately costive, and about a month after the commencement of his attack, he perceived that his urine was discharged in smaller quantity than usual, and that he was much more frequently called on to pass it than before. He also mentioned that he had gonorrhœa about six months before, and that he had used balsam of copaiba and injections.

Some time after this he said he noticed some white matter passing with the urine, but did not pay any particular attention to it, as it gave him no inconvenience. His appetite was tolerably good, and he had no headache nor any symptom of determination of blood to the brain. He denied having received any injury of the back, and there was no tenderness over the spinous processes of the vertebrae. He had no pain in the spine, either before or since the occurrence of his illness, nor was there any symptom of inflammation of the substance or membranes of the spinal cord. When admitted, he had considerable diminution of sensation and complete loss of motion in one of the lower extremities; in the other he still retained some power. He had also retention of urine, requiring the daily use of the catheter.

The treatment was as follows:—He was placed on one of Dr. Arnott's hydrostatic beds, as there was a great tendency to stripping over the hips and sacrum, a purgative pill was administered two or three times a day to remove the costiveness, and he was ordered to be cupped over the loins. The latter was done in consequence of his complaining of some tenderness on pressure in the situation of the kidneys. His symptoms, however, went on without any improvement, and he died about a month after his admission.

On dissection, the following phenomena were observed:—The kidneys, which were first examined, appeared rather soft and of a yellowish colour, but there was no vascularity, suppuration, nor other change of structure. The ureters were somewhat distended, but presented no other trace of disease. The bladder was contracted, its muscular coat thickened, and its mucous membrane very vascular. There was no affection of the prostate. On examining the spinal cord, Dr. Stokes observed that he thought the cauda equina appeared to be slightly softened, but remarked that from its appearance he could not state that it was actually diseased. The rest of the spinal cord appeared healthy and normal; there was no vascularity, effusion, nor softening. External to the sheath of the cord there was a small, flattened, oval body, about the size of half a very small hazel-nut, and of a consistence intermediate between lymph and fat. Around this there was some slight degree of vascularity. Dr. Stokes observed that, from the small size of this body, and the peculiarity of its texture, he entertained strong doubts as to its having any influence in the production of the symptoms noticed during life. He remarked, although it might have been originally the product of inflammation, and have existed in the form of an effusion of lymph, still the circumstance of its conversion into a fatty substance proved that it must have existed for a very considerable time, and the smallness of its size, as well as the obscurity of its origin, did not by any means satisfactorily explain the occurrence of paraplegic symptoms.

The last case in connexion with this subject, which I have to lay before you, appears to be analogous in its mode of origin to the former:—A gentle-

man of strong constitution, and extremely fond of field sports, particularly fishing and shooting, exposed himself repeatedly to wet feet at a time when he was labouring under the effects of a long mercurial course. Taking large quantities of blue pill, and exposing the lower extremities to wet at the same time, are circumstances which have an obvious tendency to produce disease, and it is not to be wondered if this gentleman became the victim of his want of caution. He got numbness and weakness in his legs, which he at first attributed to fatigue and over-exertion; but, as the disease went on, he became more and more powerless, and, finally, applied to me respecting his illness.

On examination, I found that he had no pain in the back, nor tenderness on pressure; nothing, in fact, to indicate any original affection of the spinal cord. The functions of the brain also were natural, and there was nothing about him to lead me to suspect cerebral disease. He had, however, considerable impairment of the muscular functions of the lower extremities, and could not walk without the aid of crutches, or some person to support him. In treating this case, I looked upon it as an instance of imperfect paraplegia, in which the paralysis apparently rose from impressions made upon the sentient extremities of the nerves of the legs and feet, at a time when these nerves were particularly liable to be deranged in their functions from the previous use of mercury. I therefore had recourse to remedies directly applied to the extremities of those nerves, and fortunately succeeded in restoring this gentleman to the use of his limbs. The cure, however, was not perfect, for a very notable degree of weakness still remains.

Of this form of paraplegia I have now witnessed many instances. In most cases I was induced to think that it arose from impressions made by cold and wet on the lower extremities. It is most commonly observed in young gentlemen who are addicted to fishing and shooting, and who in pursuit of their amusements get wet feet repeatedly, from walking over boggy grounds, or wading in the water. It is also observed in labourers whose employment obliges them to stand in water for many hours together, as in draining, pump-sinking, and other similar occupations. In all cases it assumes the creeping form, and generally appears at first in one limb, and afterwards in the other. There is, however, considerable variety in the rate of its progress; in some cases the patients become almost completely paraplegic in a few weeks from the commencement of the disease; in others it will go on for months, and even years, before the power of the lower extremities is completely destroyed.

Where its progress is slow, it makes its approach in an insidious manner, and is at first scarcely noticed by the patient. Its latency is here further favoured by the absence of pain, numbness, or formication; for it is only at the most advanced stages of such cases that derangement or diminution of sensation is noticed. It is only when making some unusual exertion, as in going up stairs or ascending a hill, that the patient finds a more than ordinary degree of weakness in the lower extremities. The first symptom which generally attracts his attention is an incapability of walking as far as he has been accustomed, but this is attributed to some temporary weakness, or is considered to be the result of previous fatigue. As the disease progresses, walking up an ascent becomes a matter of some difficulty, there is a shuffling motion of the legs, and the patient is apt to stumble from slight obstructions. Gradually the loss of power becomes more manifest, it excites the attention and surprise of the patient, and he finds that he is no longer able to walk without the aid of a stick or some person to lean on. The paralysis is, however, seldom complete; with the help of crutches the patient continues to

hobble about, and it is only in bad cases, and at an advanced period of the disease, that he becomes paraplegic. The paralysis is never so sudden nor so complete in this form of paraplegia as it is in cases of disease of the spinal cord, or scrofulous ulceration of the bones and ligaments.

In other cases, however, the paraplegia, though evidently of the same origin, and having the same creeping character, advances with much more rapidity; and the patient may, in a few weeks from the commencement of the attack, experience a very considerable diminution of power in the lower extremities. In such cases it will be generally found that one limb is much more affected than the other, the loss of power being most complete in the limb which was first engaged.

With respect to sensation, it appears to be affected as well as motion. In the slow and chronic form of this species of paraplegia, it does not attract the attention of the patient so quickly as the derangement of muscular power; it is generally some time before he notices any diminution of sensation, and then accidentally. In the more advanced stage, however, this becomes manifest, and is accompanied by a feeling of cold in the lower limbs, which seldom extends higher than the knees. In the more rapid and acute form, the derangement of sensation is much more obvious, and is generally the first symptom noticed by the patient. There is at first a feeling of numbness, which commences in the toes or feet, and extends up the limb; this, in the course of a few days, is followed by formication and tingling pains in the course of the nerves, and then loss of power and diminished sensation. *There is, however, in both these forms of paraplegia, much less impairment of sensation than of motion, and the loss of sensation is never so complete as in paraplegia from disease of the spine.*

There is one curious symptom occasionally observed in this disease, which is that, before the appearance of any decided symptoms of loss of power in the lower extremity, irritation of the lower part of the digestive tube takes place; the rectum becomes morbidly excited; the patient complains of tenesmus, and thinks he is about to have an attack of piles. This was the first symptom observed in one of the cases I attended; the patient complained so much, that we were induced to examine the state of the rectum, but could not find anything to account for the morbid excitement. The same observations apply to the bladder, with this exception, that the morbid irritability of this organ occurs occasionally after the disease is confirmed and has made considerable progress. On the whole, however, affections of the bladder and rectum are rare in this form of paraplegia; and it is only at the advanced stages that we sometimes meet with that derangement in the muscular powers of the bladder and rectum, which occurs so frequently, and at such an early period, in the paraplegia from spinal disease.

In cases of paraplegia from disease of the spinal cord or its investments, it has been observed that the urine becomes altered in its quality, and assumes an ammoniacal odour. I have not observed this occurrence in the forms of paraplegia that I have detailed. The urine is turbid, scanty, and voided oftener than usual; but I cannot say that I have seen it in any case decidedly ammoniacal, even in the advanced stages of the disease, and where the patient was completely bed-ridden. Should future observations prove that this diagnostic mark is constant, it may be of some value in distinguishing this from other forms of paraplegia.

In these cases there is scarcely anything which would lead us to fix on the spine as the seat and organ of the disease; neither can we find anything in

the brain with which we can connect the paraplegic symptoms. There is no pain of the head or of the spine, very seldom any tenderness, the patients are in the full vigour of intellect, and all the organs of sense in their normal condition. The functions of respiration and circulation are unaffected ; and it was remarked in the first case which I have detailed, that there was no change in the pulse, either during the fits of vomiting or the intervals of ease. The appetite also is generally good ; but, in almost every instance I have met with, there has been remarkably obstinate constipation.

With respect to the prognosis and treatment of this form of paraplegia, I have but little to say. The prognosis is generally unfavourable, particularly where the disease has lasted for some time, and is accompanied by morbid irritation, or loss of power in the bladder or rectum. It is also bad in proportion to the slowness with which it has come on, and the absence of pain or formication of the lower extremities. With respect to treatment, I may observe that I have never seen any benefit derived from applications to the spine. The application of blisters or issues over the back or loins does not appear to be productive of the least good effect ; of the latter I can speak positively from experience. They are an enduring source of annoyance to the patient, and never produce the least amelioration of symptoms.

I am in the habit of applying my local remedies to the legs and thighs, selecting those parts in which the greatest cutaneous sensibility exists. What I generally do is to keep up a succession of blisters along the inside of the legs, and over the anterior and inner parts of the thighs. The practice of medicine furnishes many proofs of the utility of stimulant applications to the nervous branches, in case of disease affecting the larger trunks. Thus, in sciatica, a blister applied over the ham or calf of the leg, where many of the ultimate ramifications of that nerve are superficial, will frequently produce a much more decided effect than when applied over the origin of the nerve itself. Liniments of a stimulating kind, and blisters repeatedly applied, are the local means on which I chiefly rely in the treatment of this form of paraplegia. After some time I commence with the use of strychnia, and continue it until some sensible effect on the system is produced, when I omit its further use, and have recourse to the exhibition of sulphur. These are the two internal remedies from which I have derived most benefit. I have in such cases seen very good effects from a perseverance in the use of the sulphur electuary. Much also will be accomplished by the external use of sulphur, in the form of baths, and hence cases of paraplegia of this kind might be materially benefited by the internal and external use of the waters of Lucan, Harrogate, Baden, Barége, &c. With respect to the use of mercury, it appears to be decidedly injurious. I have seen it given in three cases ; in all it did much more harm than good.

LECTURE XXXVIII.

BELL'S PARALYSIS.—STAMMERING.—VARIOUS NEURALGIC AFFECTIONS.—INFANTILE CONVULSIONS.—MYELITIS.

I PURPOSE to devote this lecture, gentlemen, to the consideration of some other affections of the nervous system, of which I have not yet spoken; and, first, as to the prognosis to be derived from affections of the portio dura of the seventh pair of nerves.

Sir Charles Bell and Herbert Mayo were the first who distinctly enumerated the symptoms attendant on paralysis of the portio dura, and drew the attention of medical men to the fact that this paralysis of the face, now popularly termed "Bell's paralysis," may often exist independently of cerebral disease; and, consequently, practitioners in general consider this affection as dependent upon some impression made upon the nerve itself, or its extremities, and unattended with danger. This view of the subject is, generally speaking, correct, but still it is liable to the following important exceptions: I have seen two cases of seizure, evidently apoplectic, in which the only paralysis that followed the seizure was seated in the muscles supplied by the portio dura. This paralysis yielded in both patients, in the course of ten days or a fortnight, to appropriate general treatment, with a succession of small blisters applied behind the ear, over the orbit, and to the cheek. It is difficult to conceive how any cerebral affection can give rise to a paralysis limited to a part supplied by a single portion of the nervous system; but still such an occurrence occasionally takes place, not only in the part specified, but in the tongue and in the upper extremity. Nor is this isolation of the paralytic affection in such cases always decisive of a favourable termination; for usually, in the progress of time, another apoplectic seizure occurs, giving rise to general hemiplegia; the physician must therefore determine the degree of danger attending Bell's paralysis, and other insulated paralytic affections, not by the extent of the parts engaged, but by the cause which has given rise to them.

In almost all the cases of Bell's paralysis heretofore published, the cause has been local and external, and therefore this paralysis is usually considered to indicate no deep-seated or dangerous lesion. That it is not always so, however, the instances brought forward by Abercrombie and Mr. John Hamilton distinctly prove; for in both the disease arose from destruction of the portio dura, occasioned by caries of the petrous portion of the temporal bone, necessarily fatal. The following case is similar, and is peculiarly instructive, as proving that caries of the petrous portion may exist in a very chronic form combined with otorrhœa, and may not give rise to any urgent symptoms affecting the general health, until long after the portio dura has been destroyed, and Bell's paralysis been produced.

From an attentive consideration of the history of the following case, it would appear that the disease first destroyed the membrana tympani, the internal ear, the ossicula, the portio dura of the seventh pair within the aque-

duct of Fallopius, together with a good deal of the petrous portion of the temporal bone on that side which looks towards the tympanum. During this stage Bell's paralysis was produced, and profuse otorrhœa existed without any cerebral disturbance. But as the disease ate its way inwards, until it perforated the dura mater, the matter formed found a readier exit into the cavity of the arachnoid, and an entirely new set of symptoms commenced, denoting cerebral and spinal disturbance. The cessation or diminution of the flow of matter from the external ear at this point of time cannot therefore be considered as the result of a vicarious suppuration set up in parts more deeply situated, but must be regarded as the simple result of the fact, that the progress of the disease had formed a new opening internally, into which the matter found a readier vent.

A boy about ten years old was admitted into the Meath Hospital, labouring under general dropsy. He appeared of a scrofulous habit, and was much worn down by long continued diarrhœa. Under appropriate treatment his symptoms gradually but slowly disappeared, and he was restored to comparative health. We now observed that the right side of the face was affected with paralysis, and on examination found that he had been subject to a discharge from the right ear for seven years previously. The paralysed cheek presented the phenomena usually observed in "Bell's paralysis." He was attacked soon after with acute pain in the ear, and in the left side of the head; a fortnight after, convulsions set in; the pain moved from the side to the back of the head, then to the back of neck, and ultimately extended the whole way down the spine, and about this period the otorrhœa diminished. A few days before death *he was attacked with spasms resembling those of tetanus, and the surface of the body became exquisitely tender to the touch.* He never had any loss of motion, and to the last his intellect was perfect. From the period when the pain set in to that of his death, the convulsions returned about six times.

Post-mortem.—The portio dura was dissected on the face, and found healthy; the nerve was also healthy from its origin at the base of the brain to its entrance at the meatus auditorius; immediately above this opening the dura mater was of a greenish colour, detached from the bone as if by fluid, and perforated by a round hole large enough to admit a small crow quill. On dividing this part of the membrane, the space between it and the bone was occupied by a thick, greenish, and offensive pus, and the opening in the dura mater was observed to lie exactly opposite the foramen in the petrous portion of the temporal bone called the *aqueductus vestibuli*; this opening was much enlarged, and the bone around it was in a carious condition. The nerves at the base of the brain were bathed in this thick green pus, but the organ itself was everywhere healthy, and free from any excess of vascularity. The arachnoid was nowhere thickened or opaque, and the pia mater not more injected than natural; the ventricles were not distended. Our attention was next directed to the state of the spinal cord; the theca vertebralis was much distended by the same kind of matter, which flowed abundantly from any accidental puncture of the membrane. The matter was contained in the sac of the arachnoid, which membrane was quite healthy, and presented its usual glistening appearance, no thickening or opacity observable in any part of its extent; the pia mater was also free from disease; all the attachments of the *ligamentum dentatum* remained unbroken. The spinal marrow, on being slit up, presented no trace of disease; the roots of all the nerves from the base of the brain to the cauda equina were bathed in pus, the presence of which fluid

on the surface of the brain and spinal marrow had no doubt irritated these organs, and occasioned the tetanic symptoms and the cutaneous tenderness.

Mr. MacDonnell, my clinical clerk, traced the portio dura through the aqueduct of Fallopius; about a quarter of an inch from its entrance, the nerve was completely divided; the petrous portion of the bone was extensively destroyed, and presented a mere shell; the membrana tympani and all the internal ear were destroyed.

The following case contrasts in an interesting way with the former, exhibiting the vitality of the parts supplied by the portio dura, affected exactly in an opposite manner; for the muscles that in the one were paralysed, were in the other subject to a spasmodic action which lasted for several months, and during the period of its greatest intensity returned about every fourth second. I am not aware that this disease had been hitherto described, and therefore am authorised to give it a name; and, accordingly, in honour of the great man to whom we owe such extensive discoveries on the physiology and pathology of the nervous system, and who has more particularly thrown such light on the affections of the portio dura, I propose calling it "*Bell's spasms of the portio dura.*"

A woman named Quinn, aged 40, of spare habit, was admitted into the Meath Hospital, June, 1841. She stated that her complaint commenced four years and a half before, in the following way:—"The lower eyelid of the right eye became affected with spasmodic twitches, producing a kind of winking; and other muscles of the face which receive branches from the portio dura, and which it is unnecessary to enumerate, became affected in a similar manner by degrees. This disease was unpreceded by pain in the head, ear, or any part of the face. Her general health was good. On admission, all the muscles of the face supplied with the seventh nerve were affected by spasmodic contractions, occurring many times during a minute. The angle of the mouth and ala nasi of the right side were pulled towards the ear; the lower eyelid closed in a peculiar manner, producing a rather ludicrous kind of winking. It was also observed that the platysma myoides participated in each spasmodic contraction, and its fibres were seen throwing themselves out strongly in relief, in well marked bundles. She also complained that the os hyoides was sometimes pulled towards the right ear. *These phenomena occurred also during sleep*, and were greatly exaggerated by any kind of excitement. She complained of constant noise in the right ear without any pain; but the sense of hearing was quite unimpaired. No diminution of sensation, or alteration of the temperature of the affected side. Her health was good.

The phenomena presented in this case were all owing to some unknown affection of the portio dura. The only muscles engaged were those receiving branches from that nerve. We know that, on quitting the stylo-mastoid foramen, the portio dura sends a branch to the stylo-hyoid muscle and another to the digastric, both which muscles being connected with the os hyoides, will, of course, when affected by spasms, drag that bone towards the ear of the same side. In the substance of the parotid gland the nerve divides into two large branches; one ascends on the face, called the temporo-facial; the other, the cervico-facial, assists the former in supplying the muscles of the face and chin, and also sends some *remarkably long branches to the platysma myoides muscles*, and the other superficial muscles of the neck. Can we explain the constant noise in the ear, *unaccompanied by pain or loss of hearing*, by a similar spasmodic action of those small muscles of the internal ear which receive branches from the portio dura, by which a muscular *bruit* was produced, the intensity

of which may have been greatly exaggerated by its vicinity to the organ of hearing.

Let me next call your attention to neuralgic affection of the larynx. The first case which I shall speak of occurred in a young lady originally of vigorous constitution, but latterly suffering from menstrual irregularity and hysteria. The laryngeal affection had been considered to be inflammatory in the country, and had been treated with purgatives, leeches, blisters, antimonials, and finally mercurialization. No relief had been obtained, and she came to Dublin, where she was placed under my care, and that of Sir Henry Marsh and Mr. Barker. The pain had become almost constant when we first saw her, but was by no means violent, except now and then, when it used to become suddenly aggravated. These paroxysms of pain could not, properly speaking, be called violent; they were, however, distressing, and amounted to a most annoying feeling of distress about the whole region of the larynx. There was no external tenderness, and the internal fauces were healthy. We considered it be a hysterical nervous affection. This neuralgia was chiefly remarkable for a change of tone and weakness in the voice, which invariably attended the paroxysms, shewing that the *rima glottidis* and the *chordæ vocales* were the parts chiefly implicated. We must suppose, therefore, that the pain was derived from the branches of the superior laryngeal nerve, which Dr. Reid has proved to be chiefly *sensitive*.

The alteration of voice which accompanied the paroxysms of pain must be considered as a proof that a superior laryngeal nerve has some influence on the motions of the vocal organ; unless, indeed, we adopt the supposition that the affection extended likewise to the inferior laryngeal nerve. The facts of the case contain nothing decisively confirming or negating either hypothesis.

We first gave large doses of carbonate of iron, which had the effect of rendering the attacks periodic. Every morning, at *ten o'clock to the minute*, the paroxysm commenced. The dose of iron was now increased, afterwards sulphate of quina, and finally arsenic was employed, but without any corresponding improvement. The degree of suffering became, indeed, less severe, and its duration less protracted, but it appeared extremely doubtful whether the improvement was not owing more to time than to medicine. Under these circumstances we thought it prudent to desist from all active treatment, and we recommended change of air, scenery, and the use of chalybeate mineral waters.

This case affords a striking example of the curious fact, that medicine administered for the purpose of relieving a disease more or less fluctuating or remittent in its character, will sometimes render it strictly periodic, with marked paroxysms and free intervals. Having produced so striking an effect with our remedies, we are apt to calculate with confidence on still further improvement, and we increase the doses of tonics with boldness and full of hope; disappointment, however, here awaits us, for no tonic will be found capable of affecting any further alteration or shortening of the fit. In such cases we cannot be too much on our guard, lest we injure the constitution by too frequent attempts to procure a diminution of suffering.

Loss of speech arises sometimes from lesions of apparently a very trifling character. A person may totally lose his speech without any previous existing or premonitory symptoms indicative of nervous lesion—without having experienced any sensation of pain or vertigo, any noise in the ears, any indi-

cations of determination to the head—in fact, without anything to show that the aphonia was connected with any particular state of the brain. Thus, a barrister whom I attended with Dr. Beatty, was walking up and down the hall of the Four Courts waiting for a case to come on, and chatting with one friend and another; as the hall was rather crowded and hot, he went out into the area of the courts for the sake of the air, and had not remained there more than ten minutes, when an old friend from the country came up and spoke to him. He was pleased to see his friend, and wished to inquire about his family, when he found to his great surprise that he could not utter a single audible sound; he had completely lost his voice. He recovered the use of his tongue in about three weeks, but not completely, for some slowness of speech remained. When loss of speech was first perceived, his friend brought him home in a carriage; and during the day he had several attacks of vertigo, and afterwards hemiplegia. For several hours, however, before distortion of the face or any of the usual symptoms of paralysis had commenced, the only existing symptom was loss of speech. This gentleman died of apoplexy in about two months.

In many cases of paralysis you will find that although the patients have lost the power of utterance, yet the motions of the tongue appear to be nowise deranged. In the majority of cases it can be shortened, elongated, raised, depressed, or moved from side to side, with as much apparent facility as in a state of health; and yet the voice is in some instances very much impaired—in others, totally lost. In such cases it would appear that the defect lies in the glottis, which forms and modulates the voice, and not in the tongue or lips, which divide and articulate it. Indeed this is evident to any one who observes the interrupted and spasmodic efforts which paralytic persons make when speaking; they are in fact all stutterers.

A young gentleman of delicate constitution, and who is now about sixteen years of age, continued to enjoy tolerably good health up to his sixth year. When about six years of age he went to bed one night in health, and without any unusual symptom, but on getting up in the morning it was observed that he had lost his speech, and was unable to articulate a single word. His family became alarmed, and sent for a physician immediately; the boy got some internal medicine and a stimulant gargle, and recovered his speech in a few days, without the occurrence of any symptom of laryngeal inflammation or cerebral disease. But what was remarkable in the case was this: the boy, who up to this period had spoken well and distinctly, now got a terrible stutter.

This resisted all kinds of treatment, and for ten years he continued to stammer in the most distressing way, and was so annoyed by it himself, that when a boy he used to stamp on the ground with vexation whenever he failed in uttering what he wished to express. In the month of May last he got an attack of chronic laryngitis of a scrofulous character, and evidently the precursor of phthisis. Dr. Stokes and I have examined him, and we feel convinced that tubercular deposition is going on in the lungs. But what is most curious in the case is this: after he got the laryngitis, a very peculiar change took place; the laryngeal inflammation modified the tone of his voice so as to make it a little husky, *but the stammering has completely ceased.*

You are aware that stammering has been explained as depending on spasm of the muscles which are employed in modifying the column of air as it rushes through the narrow aperture of the glottis. At certain times, and under a variety of circumstances, those fine muscular organs become spas-

modically affected, the vocal chords no longer undergo the same steady and exact tension and relaxation, and speech becomes interrupted in consequence of frequently recurring closure of the glottis.

In the case to which I have referred, inflammation taking place in the mucous membrane covering these delicate muscular fibres, you can conceive that either the thickening of the mucous membrane, or the alteration in the state of its vitality, may have so modified the disposition of the parts, that they become incapable or indisposed to undergo those rapid contractions necessary to produce stammering, by inducing closure of the glottis at the moment that its aperture ought to remain open. The case itself, however, is an extremely curious one, and I do not believe that there is any similar one on record. Everything which bears on the cure of so important a disease as stammering, even though it be accidental, and not the result of medical care and ingenuity, is of great value, inasmuch as it tends to place the causes of the disease in a clearer light. In this point of view I look upon the case as one of very great interest.

There is one curious fact with reference to stammering which I do not think has been before noticed, namely, that women very rarely stammer. In a family of my acquaintance, this defect of the speech has been hereditary among the males for three generations, but the females have in no single instance been so affected.

With respect to the cure of stammering, I have recently discovered a method by which the most inveterate stutterer may be enabled to obtain utterance for his words with tolerable fluency. It is simply by compelling him to direct his attention to some object, so as to remove it from the effort he makes to speak. Thus, I direct him to hold a rule or bit of a stick in his right hand, and with it to strike the forefinger of the left in *regular time* with the words he is uttering; the eye must be fixed, and all the attention directed to the finger he is striking, and the time must be strictly kept with the syllables. This method I have tried in several instances with complete success, and Dr. Neligan informs me that since I first mentioned it to him, he has found it completely effectual in numerous cases. Although, of course, when thus employed, this plan can only be regarded as a means of affording temporary relief, I have no doubt that if it were perseveringly followed out with young persons who stammer, both in reading and speaking, it would cure them permanently of this unpleasant affliction. Its efficacy would seem to prove that stammering is altogether a nervous affection.

With reference to neuralgia, we find that it attacks various parts of the body, and amongst others the mammæ.—An unmarried lady, residing in the neighbourhood of Dublin, consulted me in July, 1829, for this affection. She was of the sanguineous habit, robust, and otherwise healthy. The disease had lasted two years with various degrees of violence; the breasts being at times nearly free from pain, but generally they were very troublesome. During the paroxysms, which often lasted several days, and sometimes considerably longer, the mammæ, which in this lady were full and large, became extremely painful and tender, but were neither tumefied, hard, nor red. The intervals between the paroxysms were marked not only by a total cessation, but by a gradual diminution of pain. At no period had there been any spinal tenderness. One breast was not more affected than the other, and the axillary glands were not swollen. She had consulted several practitioners, had taken much medicine, and made use of many topical applications, with-

out relief. Leeches had been repeatedly applied, but their bites had invariably caused excruciating pain, and the bleeding they occasioned was not followed by the least relief.

I at first tried stupes, narcotic liniments, and plasters, with warm salt-water baths, but these measures were unattended with the least improvement. The absence of complete intermissions, and of well-marked paroxysms, prevented me, during several weeks, from perceiving the true neuralgic nature of this pain; at last this view of the subject occurred to me. I tried the carbonate of iron with marked benefit. The disease has since frequently recurred, but its violence has always been lessened by the carbonate of iron. Sea bathing she likewise finds useful. I may here observe that in those cases of neuralgia in which carbonate of iron proves useful, I never found it necessary to raise the dose beyond one drachm three times a day. Indeed a larger dose than half a drachm is seldom required. This statement of my experience I consider necessary to counteract the impression made on the minds of students by a perusal of some of the London periodicals, where enormous doses of carbonate of iron are recommended by Dr. Elliotson.

I have examined this subject in a practical point of view with great attention, and think that what is true concerning carbonate of iron applies also to most *tonic* medicines. In fact, we may consider it as a general rule that tonics are rarely indicated where moderate doses do not effect the desired purpose. This applies more particularly to the stronger tonics, such as the salts of iron, of arsenic, and quina. I can scarcely conceive a case possible in which a judicious physician will find it necessary, for instance, to give more than ten grains of sulphate of quina in a day, and yet much larger doses are not unusual here and elsewhere. Whenever the symptoms supposed to call for such a treatment resist moderate doses of sulphate of quina, we ought to pause, and reflect whether another plan of treatment ought not to be adopted.

There are two states of the system attended frequently with well-marked rigors, febrile paroxysms, and intermissions closely resembling ague; I mean internal suppuration, and local inflammation without suppuration. Practical physicians are fully aware of this circumstance; *but there is another condition of the system in which symptoms simulating ague arise, totally unconnected with inflammation*, and of which I have seen two remarkable examples. They both occurred in females. One, a lady of a nervous temperament, in about a fortnight after her confinement was affected with well-marked symptoms of quotidian ague, which grew worse and more violent during the exhibition of very large doses of sulphate of quina, but she rapidly got rid of her complaint when, at my suggestion, camphor, aromatic spirit of ammonia, &c., were substituted in its place. In another lady, symptoms of tertian, and afterwards of double tertian, had continued for many weeks, and had reduced the patient extremely; sulphate of quina, arsenic, and opium had successively received a fair trial, but in vain. The disease, however, finally yielded to the exhibition of diffusible stimulants, used in combination with *antacids*.

I cannot point out how such cases are to be distinguished from ague, except it be by the failure of the sulphate of quina. From local inflammations and suppuration they may in general be distinguished with facility. I may here observe that in a gentleman treated by Sir Henry Marsh and myself, violent symptoms of ague depended on the presence of a number of *very small* abscesses in the liver. Here sulphate of quina given in *lavements* caused a cessation of the rigors, *but did not diminish the other symptoms of*

fever; on the contrary, had it been persevered in, the intermittent would have been evidently converted into a continued fever.

The influence of sulphate of quina in preventing rigors, even where it cannot remove the cause of constitutional irritation, is well illustrated by its effects where the symptoms depend on stricture of the urethra; and ought to be recollected by every practitioner, lest he be misled occasionally by this partial improvement into an injudicious continuance of the medicine. Where sulphate of quina is intended to act as a *tonic*, I am persuaded that the dose should never exceed a grain three times a day, and generally even smaller quantities are sufficient; when a combination of tonic and purgative medicines is required, all our intentions may be answered by a combination of sulphate of quina in proper quantity, with the compound extract of colocynth, or the aloetic pill with myrrh.

Neuralgia of the testicle is not a very common form of disease, but it requires notice, as it gives rise to excruciating agony, and constitutes one of the most painful affections that can be imagined. I have seen two examples of it within the last year; the first was a young gentleman of highly irritable nerves, who had studied hard and dissipated much; in him the paroxysms of pain did not observe any very marked period, but returned daily at uncertain intervals, which grew shorter and shorter, until at last he had scarcely any respite day or night. There was no fever, and not the slightest appearance of local congestion or inflammation. When attacked with a paroxysm the patient would throw himself on the floor, and roll about in the greatest agony, covered with a cold perspiration. This case yielded to large doses of carbonate of iron freshly prepared, and frequent inunction of the testicle and cord with belladonna ointment. The second case of neuralgia of the testicle occurred in a gentleman who laboured under neuralgic pains, decidedly of a gouty nature. In him the pain of the cord and testicles used to come on every afternoon about four o'clock, and continue for several hours. The pain, though considerable, did not approach the degree of agony experienced in the first case. It was at times, however, so severe as to compel him to groan aloud. This neuralgia of the testicle disappeared after a few days, and was replaced by a violent gouty pain in the loins and right hypochondrium. The latter yielded to the usual local treatment and the use of colchicum internally.

A man was admitted into the chronic ward a few days ago, who cannot separate the lower from the upper jaw to the distance of more than two lines. What are the cases in which we find this immobility of the lower jaw? Most commonly in tetanus or locked-jaw; but here this cannot be the case, for the man has no sign indicative of a tetanic affection, no rigidity of the muscles of the neck; his countenance is very different from that of a tetanic patient, and he has not been exposed to any of the ordinary exciting causes of that disease. But, leaving all consideration of the nature of the disease out of the question, what is it that prevents him from moving his lower jaw? It must depend on one of two causes; either the muscles which perform the motions of the lower jaw are stiff, rigid, and incapable of motion, or else there is some disease of the articulation which obstructs the motion of the bone. This proposition is universally true of all articulations, that when they become impeded or completely obstructed in their motions, the derange-

ment arises from some abnormal condition of the muscles, or of the bones and ligaments which form the joint.

In this case we find that, in addition to being unable to perform the proper motions of the lower jaw, the patient has intense pain, darting from the angle of the jaw towards the temple, the ear, and the side of the neck. This pain is of an extremely violent character, so as to resemble tic douloureux, and the resemblance is still farther increased by its being more or less intermittent. Now, on inquiry into the history of this case, we find that the patient had some time ago laboured under toothache, for which he had the last molar tooth but one of the upper jaw extracted, and that immediately afterwards he was seized with violent pain in the part, and found that he could no longer move his lower jaw as usual. I have seen many cases of this kind, in which a painful or carious tooth, or an injury done to the gum or jaw, has been followed by violent darting pain in the nerves of the face, simulating in many particulars tic douloureux.

I remember being sent for to Middleton, near Cork, some time since, to see a young lady of delicate constitution, whose health was materially deranged from what was said to be an attack of tic douloureux. She had been under the care of many practitioners, and had used very large doses of the carbonate of iron and sulphate of quina, and at the time I visited her was taking arsenic. The first thing I did on my arrival was to examine her teeth. On close inspection, I observed that on the crown of one of the upper molar teeth there was a spot which appeared to be decayed, and found on inquiry that she had frequently suffered from pain in this spot when she drank any cold liquid. I had the tooth drawn, and soon afterwards the pain completely ceased. Yet in this case the pain was not only of an intense character, preventing sleep and wearing out her strength, but it had its intermissions, and was aggravated at particular hours of the day.

Another instance of the same kind came under my notice about twelve months ago. A young lady was brought to me by a medical friend of her's to have my advice for an attack of tic douloureux. She had been attended by this gentleman with great care, and no mode of relief left untried, for her sufferings were intense, and she had constant exacerbations of pain. I asked him were her teeth sound, or had she any disease of the gum or jaw? He said not, and that he was sure of this, for he had examined her teeth over and over again. On opening her mouth, however, I thought I saw some unsoundness in one of the teeth, and recommended her to go to Mr. M'Clellan and get it drawn. She did so, and the pain quickly disappeared.

I could also give you many cases in which an injury done to some of the branches of the dental nerve has given rise to symptoms closely resembling those of tic douloureux. One of the most curious circumstances connected with such cases is, that the pain is always of a more or less intermittent character. The same thing is observed in that form of headache which arises from irritation of the brain, produced by spiculæ of bone growing from the internal table of the skull. In a case which occurred sometime back at the Meath Hospital, where several spiculæ, some of them more than a quarter of an inch in length, were pressing on the brain, the headache was of a distinctly intermittent character. This remarkable periodicity of exacerbation, in cases where the operation of the exciting cause continues still the same, seems to be peculiar to the nervous system.

In many cases considerable derangement of the facial nerves is found to follow an injury done to some branch of the dental nerve in drawing a tooth.

When the bone has been injured by the force used in extracting the tooth, it frequently happens that, if the injury be not quickly repaired, and the parts healed up, symptoms resembling those of *tic douloureux* or rheumatic neuralgia will supervene, and give the patient a great deal of annoyance. Such was the origin of the mischief in the case before us ; the man received an injury of the upper jaw in drawing a tooth which is not as yet healed, as you may perceive by introducing a probe between the separated portions of gum, when you will find it grate against the rough surface of the bone. In addition to this, there are considerable tenderness of the gum and swelling of the neighbouring parts, which have extended to the muscles, their sheaths, and finally to the articulation of the lower jaw. You can satisfy yourselves of this by examining the parts and striking the lower jaw, so as to press it suddenly upwards and backwards into the glenoid cavity, just in the same way as you press the thigh bone against the acetabulum when you wish to ascertain whether there is inflammation of the hip joint. The motion of the lower jaw is here prevented by inflammation, extending from the upper jaw, so as to involve its ligaments and the neighbouring muscular sheaths.

There are other causes also which may be attended with the same diminution of motion in the joint. Thus, a man may get an attack of rheumatism in the scalp, which may extend to the temporal muscles, and prevent him from being able to depress his lower jaw ; and I have known cases in which this condition of the temporal muscle has given rise to suspicions of the existence of trismus. When you examine the articulation you find nothing amiss, but when you come to press on the temporal muscle, above the zygoma, the patient complains of pain and tenderness. The irritation produced by rheumatic inflammation gives rise to a fixed rigid state of the muscle, and hence the patient cannot open his mouth. This form of disease I have described long since in a paper published in the Dublin Hospital Reports. It can be relieved with great ease by applying leeches to the temple, and ordering the patient to rub over the part a small portion of mercurial ointment with extract of belladonna, two or three times a day. The same state of the temporal muscle is sometimes observed as resulting from an extension of inflammation, in case of a wound of the scalp in its vicinity.

In the case before us, almost every thing will depend on the process which nature may adopt with respect to the injury of the maxillary bone. If the bone throws up healthy granulations, and the inflammatory process ceases, the affection of the nerves, as well as of the muscles and joint, will quickly subside. All we can do under the circumstances is to apply leeches over the side of the face, and order the man to rub in mercurial ointment ; every thing, however, will depend on the turn the disease of the bone may take.

Let me next call your attention shortly to infantile convulsions, more especially those which attack children at the ages of two, four, and six months, and to the utility of oil of turpentine in their treatment.

When we consider the convulsive affections of the infantile period, we find that they may arise from a variety of causes. In the first place, they may be produced by the process of dentition. Some persons seem to think this impossible ; but it is not only possible, but true : for teething is capable of exciting a very great degree of irritation in the system. We also observe that an irritable state of the brain, accompanied by a hydrocephalic tendency, will produce convulsions ; but in very many instances, particularly in children of the ages mentioned above, they proceed from intestinal irritation. Of those forms which spring from the irritation of dentition, or of cerebral excitement,

I do not intend to speak, as, on these matters, the standard medical works furnish abundant information. I shall restrict myself, therefore, to some observations on those convulsions which depend on intestinal irritation.

As such convulsions frequently arise from causes which affect digestion, and produce a change in the mode of nutrition, they appear very soon after birth. The animal which but a short time before was nourished by the placenta, is now supported by ingesta; and hence, from this sudden change, if there be any source of irritation existing in the system of the child, or in the nature of its food, an unhealthy state of bowels rapidly ensues. To the consequences of this affection, manifesting itself so soon after birth, nurses have given the name *nine-day convulsions*. Again, when another change is made, and the nurse's milk is left off, children are also liable to convulsive fits, and these are the convulsions of ab lactation. In fact, at any period during the first year infants are very apt to get convulsions from various causes. If the mother uses an improper kind of food or drink, or gets into a bad state of health, or be strongly affected by mental emotion, the quality of the milk will be suddenly changed.* Under all these circumstances, or if the child be over-fed—a very common fault—the bowels get out of order, the whole intestinal canal is thrown into a state of irritation, and convulsive fits succeed.

It is necessary to be more explicit on this subject. When you are called to treat a case of infantile convulsions, bear in mind that they very frequently arise, particularly during the first six months, from the cause before mentioned, and this should, therefore, claim at once your attentive consideration. I remember the time when it was the common practice to treat every case of convulsions as if it were an hydrocephalic attack, and when antiphlogistics, calomel, and cutaneous irritation were the indiscriminate means employed in combating every form of this disease. If a child happened to get a convulsive fit, it was immediately said, here is inflammation or congestion of the brain; and leeches were applied in successive relays, calomel given in large doses, egg-shells, crabs' eyes, magnesia, and other absorbents administered, and the unfortunate infant cruelly tortured by the repeated application of blisters to the scalp. I have seen cases where this blistering was carried to such an extent, that the child had not a place to rest its head upon.

It is to Dr. Goode we owe the valuable discovery that there is in children a state of heaviness of head and torpor, accompanied by a tendency to convulsions, in which depletion cannot be employed, and where narcotics and even stimulants may be used with advantage. Dr. Locock asserts that convulsions of this nature may be recognized by the depressed state of the fontanelle, an assertion which I have not verified. With respect to leeching, I have to remark that a single leech to an infant is equal to a bleeding in an adult; and yet how often have we seen children leeches and leeches, until, becoming pale and exsanguineous, they sink as much from loss of blood as from the effects of disease.

With respect to the causes and periods of indigestion in children, I have already spoken. There is one point more which I wish you to hold in memory. Milk is a compound fluid, a beautiful emulsion furnished by the hands of nature, in which sugar, oil, and curd are blended with a certain proportion of

* The custom adopted by some of keeping the child at the breast for a year or a year and a-half is both unnatural and injurious. Every child should be weaned when nine months old.

water. Now, when a compound fluid such as milk enters the stomach, and is submitted to the process of digestion, those parts which are soluble in water are absorbed, and those which are not become first coagulated, and afterwards undergo resolution in the gastric juice. Thus, while the water and sugar are absorbed, the curd of the milk is separated from it by coagulation, and forms a solid substance which is acted on by the stomach, and becomes dissolved by the agency of the gastric juice, and in this way contributes to nutrition. Not a particle of the milk, however, ought to enter the duodenum until it has passed through the usual process of digestion. As the first step to the accomplishment of this is the coagulation of the curd, this occurrence takes place with extraordinary rapidity: and it is a sign of health if the milk be thrown up in this state immediately after it has been sucked. The rennets of young animals give striking evidence of this power. But if it should happen that the stomach does not act properly, and the curd remains undissolved, what is the consequence? The curd passes into the alimentary canal in a condition different from that in which nature intended it should, and consequently produces intestinal irritation. None of the purgatives given to children are attended with half so much griping as this substance.

This explains the phenomena which in such cases present themselves to our observation. The child becomes griped, irritable, and feverish, his tongue is loaded and white, he gets restless, and now and then utters a shrill scream. In this way the disease may go on for a considerable time; as the child is dropping asleep, he starts suddenly, and screams out, bends himself in the form of an arch, and throws his head back as in *opisthotonos*. I have seen children in this state for a week. The physician or nurse gives castor oil or some other purgative, and a great quantity of the curds are passed, and surprise the child's relatives. On examining the discharge, you find it consisting of lumps of different sizes, covered imperfectly with bile, and having a burnt appearance; on breaking them up, you perceive them to be white internally, and consisting of indigested curd. You remove them by purgative medicine, and the child gets well.

Now, we all can do this; it is clearly laid down in books: you are told to examine the *egesta*, and give purging medicine where it is necessary. But there is one fact which has not been noticed. When you have treated the child in this way, and the attack has been cured, if the child is very strong when put to the breast again, he may go on well, and you have no further trouble; but if he is weakly, or of an irritable habit, when he is brought back to the suck again, or spoon-fed with milk, the same process of imperfect indigestion takes place, and he gets another fit. The physician is again called in, and repeats the purgative, and the child gets better a second time; and in this way the physician goes on giving medicine, and the mother giving milk, and everybody wonders at seeing what a quantity of foul stuff passes from the bowels. How are you to avoid this? By making the infant abstain from milk in any shape for twenty-four hours, sometimes for the space of two, or even three days. It is incredible how small a portion of milk, even in the most diluted state, will keep up this disease, acting like a species of poison on the intestinal mucous surface. You know that animal poisons, such as the variolous or vaccine virus, will affect the system even when applied in a state of extreme dilution, and you can therefore conceive that a small portion of milk will operate in this manner.

I attended a case of this disease some time ago; the child had a relapse, and, on being called in again, I asked the mother whether she had given it

any milk, and she told me scarcely any. I am always suspicious when I hear the word *scarcely* used; and, on requesting to see the kind of food she had been administering, she handed me a bowl of barley-water, with the usual proportion of milk and sugar in it: it is in this way that we see the disease prolonged week after week by the prejudices of the nurse and the ignorance of the physician. Well, if you forbid milk altogether, what will you give the child? Let him take chicken-broth, barley-water, thin panado, veal-broth, or whey. How long are you to continue this? The number of days will depend on the power which the child possesses of regaining the proper tone of the stomach; some children will have the stomach out of order to-day and well to-morrow, and the length of time you are to keep up this diet will vary considerably.

When you are called, therefore, to a case of convulsions, inquire into the history of its symptoms, the nature of the alvine evacuations, and the quality and quantity of your patient's food; and, if you find that before the attack the child's bowels have been in a bad state, that they have been for some weeks inclined to be loose, or that the stools are, at the time, similar in colour and consistence to what I have described (though, by the by, you are often told that everything is quite right when it is not the case), you will then be able to judge properly of the nature of the case, and, by giving aperient medicines, you will probably not only cure the disease, but also prevent a return of the convulsions. Sometimes, however, the convulsive fits will remain after the irritating sordes have been removed by purgative medicines. Absorbents are next made trial of. These have a very beneficial influence in many cases; they can do no harm, and where acid is present (and this occurs in the stomachs of children to a greater extent than in those of adults), prove mildly purgative.

But if the convulsions continue, what else will you prescribe? I remember attending, not long since, an infant about three or four months old, who had been for some time under treatment for convulsions. Leeches had been applied to the epigastrium; it got calomel, castor oil, and hydrargyrum cum cretâ, absorbents, aperient and fetid enemata, and blisters to the vertex and stomach. Still the convulsions went on. Well, what did I do? I prescribed the following mixture:—

R. Olei Terebinthinæ, ʒj.
Olei Ricini, ʒiv.
Syrupi Papaveris albi,
Mucilaginis gummi Arabici,
Aquæ feniculi, āā, ʒij. Misce.

Of this mixture, when well shaken, exactly ʒj. was to be given every third hour, and what was the result? It operated on the bowels, and produced a copious discharge of urine, a marked improvement took place, and towards evening the convulsions entirely ceased.

Dr. Brereton informs me that he has, in similar cases, after the bowels were evacuated, succeeded in preventing a recurrence of the convulsions by means of the following mixture, suited to a child six months old:—

R. Olei Anisi, gtts. iv.
Sacchari Albi, gr. x.
Intime misceantur et adde,
Aquæ, ʒij.

Pulveris Rhej, gr. x.
 Carbonatis Magnesiae, ℥j.
 Tincturæ Opii, gtts. iv.
 Spiritus Ammonię fœtidi, gtts. x.
 Sumat cochleare unum medium tertiâ quâque horâ.

It is to be observed that much caution is necessary in giving such combinations containing opium to infants; but there is a period when depletion ceases to be useful, that a mixture like this will prove the most effectual means of curing convulsions. In such cases of convulsions, in addition to the use of purgative medicine, prescribing the mother's milk, and giving oil of turpentine, you may, during the first twenty-four hours, while the child is strong, order a warm bath, applying at the same time a sponge dipped in cold water to the head; or, if the child is weak, incline its head over the side of the cradle, and use the cold sponge, and you will find that it will diminish the fit.

Before concluding, let me say a few words on inflammation of the spinal marrow. This disease is closely connected with the subject of neuralgia. *Myelitis* is so liable to be confounded with a great variety of painful affections, that every ascertained case of inflammation of the spinal marrow ought to be recorded for the purpose of rendering more perfect a department of pathology already diligently but not completely cultivated. A young married woman was admitted into the Meath Hospital on the 12th of September, 1838. She was healthy until the period of marriage, soon after which her husband commenced a system of ill-usage, comprising beating, kicking, throwing down stairs, &c. &c. He was frequently drunk, and occasioned her every species of grief. No wonder that a life like this should have reduced our patient to the truly miserable condition she was in. She had been injured so often, that it was difficult to say to what particular act of violence her present malady ought to be referred. She is much emaciated, respirations hurried, and pulse very quick. Has no headache, but complains much of agonising pains in the loins, aggravated by pressure of the lumbar spinous processes, extending round the abdomen, and downwards to the hips and thighs. There is no pectoral affection, and her tongue, state of stomach, and general appearance are not those of a person labouring under fever. She writhes in the bed from the violence of the pains; she does not sleep night or day, and disturbs the other patients by her cries.

Blood was drawn by cupping from the loins; leeches were applied, and Dover's powder administered. Her extreme emaciation prevented us from adopting either more active depletion by the lancet, or the use of calomel. In short, we sought to relieve, not to cure, for her death appeared inevitable. Blisters we could not apply on account of the great emaciation. On the 15th we found that she had been screeching all night, and constantly wanting extract of opium, which was ordered her as a palliative. On the 16th she complained that the sense of feeling was leaving her thighs, and she died on the 18th, five days after admission. *On dissection* we found all the viscera healthy; there was extreme atrophy of the intestines, especially the colon and cæcum; so it is probable that starvation was among her afflictions. The lower portion of the spinal marrow and the cauda equina exhibited an excessive vascularity and redness, but no exudation of lymph. Each nervous fasciculus of the cauda exhibited a vein on its posterior surface distended with blood; and the remaining portion of each fasciculus displayed great arterial vascularity.

DISEASES OF THE RESPIRATORY ORGANS.

LECTURE XXXIX.

HOARSENESS.—CROUP.—BRONCHITIS.

I PURPOSE, gentlemen, to devote the present and a few subsequent lectures to a clinical inquiry into some of the most important affections of the respiratory organs; you are not, however, to expect that I will be bound down to follow any methodical arrangement, or give you a complete description of any single disease; it will be much more to your benefit that I should direct your attention to bed-side features and symptoms, which are so apt to be overlooked by the mere systematic compiler. And first let me offer you a few detached observations on hoarseness or loss of voice from sore throat or slight laryngeal inflammation—a form of disease at times very prevalent.

A form of hoarseness is frequently observed in growing boys or girls, which assumes a very chronic character, and often resists for a long time almost every sort of treatment. A boy gets cold, followed by sore throat and feverish symptoms, which may last for a few days, and then disappear under the use of aperient medicine, or perhaps without any interference on the part of the parents or the physician. The feverishness and soreness of throat subside, but the hoarseness remains, and the boy can speak only in whispers. This condition may last for weeks, and even months, without any other symptoms whatever; the patient has no cough or difficulty of breathing; his appetite is good, sleep and digestion natural, and there is no appearance of emaciation. The only thing amiss with him is the impairment of voice, and this continues so long that it gives rise to a considerable degree of anxiety on the part of his parents. When you examine the fauces, you find no appearance of inflammation in the mucous membrane, and there is no superficial or deep-seated tenderness in the region of the larynx.

How are you to treat this form of disease? It depends on a relaxed and weakened state of the chordæ vocales, and perhaps the muscles of the larynx—the result of inflammation of an exceedingly chronic character, and will not be benefitted by leeches, or antiphlogistics, or low diet. The best thing you can do in such a case is to have recourse to the use of strong stimulant gargles. You begin with a drachm of the tincture of capsicum in six ounces of decoction of bark, which is to be used five or six times a day. After some time you can increase the quantity of tincture of capsicum, but you need never go farther than half an ounce in a six-ounce mixture.

In the next place, you will have recourse to frictions over the region of the larynx and external fauces, with croton oil, which is much better adapted for such cases than tartar emetic ointment. The eruption produced by tartar emetic ointment is productive of a great deal of annoyance, and when the pustules break they prevent the boy from wearing his neckcloth. All the purposes of a counter-irritant are quite as well fulfilled by croton oil, and with much less inconvenience. The best form for using it is the following:—Compound camphor liniment, an ounce; croton oil, twenty minims; mix. Of

this mixture a small quantity, say a couple of drachms, should be poured into a saucer, and rubbed over the fore part of the neck night and morning, until a full crop of pimples appears. When these have dried up and desquamated, it should be again applied, and in this way a mild and manageable, but very effectual, degree of counter-irritation can be kept up for any length of time. In addition to these measures, should the disease continue, I would strongly recommend small doses of iodine and change of air. I have been induced to give iodine in such cases, from observing that inflammation of a chronic character seems to have many points of resemblance to that which arises from scrofula.

The last thing which I have to observe on this form of hoarseness is that you should, particularly in the beginning, insist on the observance of strict silence—a point which is said to be exceedingly hard to be attained where the patient happens to be a female. In some cases all these means fail, and then something more energetic must be attempted. The inhalation of the vapour arising from tincture of iodine and tincture of conium, added to hot water in a proper apparatus, has proved useful to some; but in all obstinate cases the sheet-anchor is mercury exhibited internally, and by means of inhaling the fumes of hydrargyrum cum cretâ. In general it is necessary to continue the mercurials until the mouth is slightly touched, when the hoarseness will be found to yield.

It is obvious that, before we employ mercury in a case of chronic hoarseness, we must feel well assured that we have not to deal with a hoarseness arising from a phthisical tendency, for in this case mercury might prove injurious to the constitution. In such cases the stethoscope and percussion often afford valuable assistance, by showing that although the patient has had a hoarseness and cough for weeks, or even months, yet there are no symptoms of tubercular development in the lungs. The cough is only the result of laryngeal inflammation or irritation; the submaxillary glands and the anygdalæ are often slightly enlarged, the fauces are red, and the back of the pharynx is covered with irregular superficial excoriations.

Connected with the subject of sore throat is the discovery, announced by Velpeau, of the use of alum in powder in acute cynanche tonsillaris. He states that this powder, applied by means of the finger to the fauces and inflamed parts, exercises a wonderful effect. The symptoms, says Velpeau, are stopped as if by enchantment, the fever diminishes, the redness and tumefaction of the inflamed parts subside, the appetite returns, and convalescence is speedily established. This application is successful at any period before suppuration has been established. Alum has long since been applied in substance to the throat, in cases of angina maligna, and in chronic sore throat; but, before Velpeau, no practitioner ever dreamed of making use of alum as a local application during the first stages of acute cynanche tonsillaris; subsequent experience, however, has proved that he much overrated its efficacy when thus applied, although it sometimes does effect a cure. By the way, this use of alum is calculated to throw some light on the good effects which this substance exerts, when taken in large doses, in cases of violent pain in the stomach arising from indigestion, as recommended by Dr. Griffin of Limerick.

And now a word or two on the treatment of croup. In the eighth volume of the *Dublin Medical Journal* I published an account of a new method of treating this disease, which was proposed by Dr. Lehman of Torgau. This method has the advantages of being simple, efficacious, and easily applied, and

its good effects are not productive of any injury to the constitution. The proper time for the application of this method is at the commencement of the disorder, when, as is usually the case, the child is awakened suddenly during the night by its invasion; no time should be lost, when we observe that the breathing is anxious, disturbed, and attended with the well-known croupy sound, and a cough of a ringing character, &c. The symptoms are too well known to require enumeration here; suffice it to say, that the most speedily fatal cases are those where the child goes to bed, apparently quite well, and not labouring under any catarrhal symptoms, and is awakened from a deep sleep by the attack of croup. Such cases often prove fatal in twenty-four hours. Even when thus intense, the disease may be arrested in its progress, by the immediate application of hot water, in the following manner: a sponge, about the size of a large fist, dipped in water as hot as the hand can bear, must be gently squeezed half dry, and instantly applied beneath the little sufferer's chin, over the larynx and windpipe; when the sponge has thus been held for a few minutes in contact with the skin, its temperature begins to sink, and it requires to be dipped again in hot water. It is better to have a second sponge ready, so that they may be applied alternately. A perseverance in this plan, during from ten to twenty minutes, produces a vivid redness of the skin over the whole front of the throat, just as if a strong sinapism had been applied: this redness must not be attended or followed by vesication. In the mean time the whole system feels the influence of the topical treatment: a warm perspiration breaks out, which must be encouraged by warm drinks, as whey, weak tea, &c., and a notable diminution takes place in the frequency and tone of the cough, while the hoarseness almost disappears, and the rough, ringing tone of voice subsides, along with the dyspnoea and restlessness; in short, all danger is over, and the little patient again falls asleep, and awakens in the morning without any appearance of having recently suffered from so dangerous an attack.

Since then I have repeatedly treated the disease on this plan, and with the most uniform success. It is, however, only applicable to those cases which are seen at the very onset of the disease, and you must remember, also, that I do not propose it to the total exclusion of bleeding and tartar emetic, which must be used in the more aggravated cases, or in those which are not seen until the disease is somewhat advanced.

I may shortly mention to you two cases which occurred recently, and which I treated thus. One was the infant daughter of a lady residing in Fitzwilliam-square; the attack was sudden and very violent; I saw it immediately, and directed the relays of hot sponges to be assiduously applied until relief was produced: the cure was rapid and complete. The other was a lady aged 35; she had an attack of croup about four years previously, when she was bled, leeches, and nauseated. I treated her on the sponge plan alone, and she was cured much more speedily.

Some time after the appearance of my remarks on this subject in the *Dublin Journal*, I received a letter of thanks from an American physician for enabling him, as he said, to save numerous lives by this plan of treating croup.

It is very much the custom, gentlemen, with those who lecture on auscultation to enumerate many sounds as connected with alterations in the condition of the bronchial tubes. We hear of the mucous, the sonorous, and the sibilant ronus—their varieties and intermixtures. Now I know by experience that these names are very apt to confuse and perplex the young

stethoscopist. There is no necessity for studying with great attention the definition of these words, or the descriptions of the various sounds they are meant to represent : I am always anxious to avoid loading the memory of the student with names. With regard to the rales in bronchitis, all he need bear in mind is, that the nature of the sound produced by air passing through the bronchial tubes will be modified accordingly as these tubes are large and small, dry or moist, or as the moisture they contain is thin or not. The two things of greatest importance in examining a case of bronchitis are to ascertain whether the minute bronchial ramifications are engaged, and, if the tubes contain any moisture, whether it is thin or viscid.

I seldom, therefore, confuse the student by telling him whether the rale is sibilant or sonorous. When asked about the nature of the sounds heard in a case of bronchial inflammation, all I say in reply is this : that the sounds are produced by the large or small bronchial tubes, and that they are either moist or dry. When the large bronchi alone are inflamed, the sounds issuing from the lung subjacent to the stethoscope are comparatively few in number, seldom exceeding two or three ; they are likewise, when dry, of a grave tone, resembling the prolonged note of a violoncello, or the cooing of a dove ; or when moist, the bubbles are large, scattered, uneven. When the minute tubes are engaged, we hear, on the contrary, not a few but many sounds, evidently proceeding from a small portion of lung ; three, four, or even six or seven sounds may be perceived together, or circumscribed within very narrow limits.

These sounds undergo rapid changes of tone during the same respiration, while every moment some of them appear to cease, to be replaced by new ones. The wheezing they produce, when dry, is sharp ; but observe, it is very unusual to find every one of them dry ; when dry sounds occur, they are generally accompanied by others, equally minute, but evidently moist. The moment I find, on applying the stethoscope, that a great many sounds are heard over a small spot, and that these sounds are dry and sharp, or are accompanied by certain modifications denoting the passage of air through fluid, I call the disease inflammation of the minute bronchial tubes, with increased secretion obstructing the free entrance of air. An attention to these considerations is of great importance in ascertaining the nature of acute or chronic bronchitis ; for the danger is not only proportioned to the extent of the disease, but also the circumstances of the minute tubes being engaged, and the quantity of fluid they contain. The sound shows that not only the minute tubes are diseased, but also that there is a considerable quantity of viscid fluid in them, preventing the entrance of air into the air cells, and tending to produce asphyxia.

Allow me now to direct your attention to the case of J. Jowson in the chronic ward, who labours under an attack of exasperated chronic bronchitis—a disease which derives its chief importance from the circumstance of being exceedingly common. There is no morbid affection of the system more frequent or more general than chronic bronchitis ; it is of every day occurrence in dispensary practice ; it is one of those cases which you will be constantly called on to treat ; and hence the study of its nature and treatment has strong claims on your attention.

Bronchitis is an affection which generally arises from impressions made by cold, either on the skin or on the mucous membrane of the lung. I think it extremely probable that, when a person gets a catarrhal affection from exposure to cold, it is not always in consequence of an impression made on some

part of the cutaneous surface. Indeed, it appears reasonable to believe that an attack of bronchial inflammation may be equally the result of an impression made directly on the mucous lining of the lung ; and that a person exposed to sudden change of temperature, as in passing from a heated room into the cold air, may get inflammation of the mucous membrane of the bronchial tubes, for the same reasons that, under similar circumstances, inflammation may be generated in the mucous membrane of the eye, giving rise to conjunctivitis. We know well that one of the most common causes of inflammation of the conjunctiva is the sudden exposure of the eye to cold sharp air, after it has been for some time submitted to the relaxing influences of strong heat and light ; and there is no reason why the same rapid change of temperature, under similar predisposing causes, should not originate disease in the mucous membrane of the bronchial tubes.

It is true, indeed, that nature has taken especial pains to maintain an equable temperature in the air admitted into the chest at each respiration ; the passage of this air through the mouth, nose, and pharynx, where it is warmed by the contact of an extensive mucous surface, and the small proportion which it bears to the residual air remaining in the lungs after an ordinary expiration, are circumstances that must powerfully counteract the low temperature of the air inspired in very cold weather. Still a considerable difference of temperature must exist between the inspired or expired air, and consequently the air passages are exposed, *more than any other tissue of the body*, to successive and rapid alternations, which never cease from infancy to old age. Nature has, of course, wisely accommodated the vitality of the bronchial mucous membrane to the circumstances in which it is placed, and the force of a never-ceasing habit still further enables it to sustain rapid vicissitudes of temperature with impunity. In this it is probably equalled by the surface of the eyeball, which, alternately covered, warmed, and moistened by the eyelids during the act of winking, and exposed to the cold of the air, increased by a rapid evaporation from its own surface while the eye is open, must, indeed, undergo rapid variations of temperature, and yet it is never frost-bitten.

When inflammation has fastened on the mucous membrane of the air passages, it makes a vast difference as to the part on which it fixes. The air passages commence with the larynx, and terminate with the ultimate ramifications of the bronchial tubes. If the disease settles at the entrance of the air passages, and forms laryngitis, the case becomes a very serious one, laryngitis being, in the infant, and sometimes also in the adult, attended with dangerous and even fatal symptoms. If the trachea should happen to be the part on which the disease falls, the inconvenience and suffering are also considerable, but the danger is by no means so urgent as in the former case. The same thing may be said of the larger bronchial tubes ; inflammation here is rarely attended with such violent symptoms as those which characterise laryngitis, and it is much more amenable to treatment. But when inflammation attacks the minute bronchial tubes to any considerable extent, and particularly if it happens to be general—that is, if it affects the bronchial tubes in every part of the lungs—we have just grounds for alarm ; the disease is one of an intense character, and unless quickly relieved, runs on to a fatal termination with great rapidity.

You perceive, then, that if a patient catches cold, and gets an attack on the chest, it is of great importance to be able to ascertain what the situation and extent of the disease are, and whether the minute bronchial tubes are engaged or not. Now, how do you know this ? Simply thus :—You first make a

cursory examination of the whole chest, by applying the stethoscope over the superior, middle, and inferior portion of each lung, both before and behind ; and if you everywhere hear something, you conclude that the bronchitis is general, and not confined to any particular part. You next proceed to examine with greater attention these wheezing sounds ; you apply the stethoscope, and if you find in each separate spot many sources of diseased sound—if you hear *a wheezing from a great many points close together*—you may be sure that the morbid sound proceeds from inflammation of the minute tubes, for the larger ones cannot exist in the small spots over which you apply the stethoscope in such numbers as to give rise to so remarkable a plurality of sounds. Of this you may be certain, that when you find a great many sounds are audible over a small space, the minute bronchial ramifications are engaged.

This man, to whose case I have called your attention, is, as you have seen, about the middle age in point of years, but he is old in constitution. In this country you will find most of the labouring poor exhibiting symptoms of premature old age—the combined result of poverty, intemperance, and hardship. Obligated to work in the open air in bad weather, they get catarrhal affections, which are renewed by repeated exposure, and prolonged for want of proper care. The natural effect of cold frequently renewed and generally neglected is, that a tendency is produced in the bronchial mucous membrane to become congested and inflamed with facility, until at length the derangement becomes permanent, and the mucous membrane no longer returns to its normal and healthy condition during the intervals.

The secretion of the mucous membrane of the bronchial tubes, in a perfectly healthy person, is almost entirely destitute of matter to be expectorated. In the normal state, the secretion of the bronchial mucous membrane, though continually going on, scarcely ever exists in superfluous quantity, for a certain proportion of it is carried off by exhalation or absorption ; *a perfectly healthy person, breathing a pure air, has no expectoration whatsoever.* The moisture secreted by his bronchial mucous membrane contains nothing that the expired air cannot carry away in vapour, without leaving any residuum, which, gradually accumulating, would at length require to be expectorated. In this respect the bronchial mucus in the healthy state differs from the mucus of other membranes of the same class ; but disease destroys this beautiful provision, and gives rise to a secretion of morbid mucus which cannot be gotten rid of in the usual way, and which must therefore be expectorated. Hence it is that persons in whom a chronic state of congestion of the bronchial membrane has been generated by repeated colds, have a secretion of superfluous matter always going on, and are constantly expectorating. This may continue for several years without much inconvenience ; the principal annoyance the patient suffers is in getting up the phlegm in the morning. At this period there is always an accumulation of fluid in the lungs after the night, during which the cough is less frequent, and expectoration less copious.

Here let me remark that, although a person may cough violently during his sleep, he never expectorates. Expectoration is accomplished by the attention being directed to the chest, by an act of volition being put in force, so as to cause a constriction of the bronchial tubes, and generate a current of air of sufficient strength to expel the mucus. To effect this the mere act of coughing is not sufficient, and consequently *we do not expectorate during sleep* ; for this purpose it is necessary for the patient to be awake.

Frequently recurring catarrhal affections, beside generating a state of chronic derangement of the mucous lining of the lungs, have a necessary tendency to

produce other bad effects. Dyspnœa is an ordinary attendant on chronic bronchitis; the vascular tissue, enfeebled by disease, loses its natural elasticity; and hence the act of respiration is performed weakly, and with considerable difficulty. In addition to this, the stress thrown on the air-cells and passages gives rise to emphysema and dilatation of the bronchial tubes.

When this man came into the hospital, he was labouring under an exacerbation of his chronic bronchitis, from a fresh attack of cold; he also suffered from dyspnœa, with a tendency to emphysema, and had been much debilitated by the frequent recurrence of his pulmonary symptoms. I do not intend to make any particular observations here on acute bronchitis supervening on chronic; it is a dangerous disease, requiring prompt and careful attention. I merely refer to this case to point out the remedies which were employed, and the principles which guided me in their selection.

At the time of our patient's admission, the fever which accompanied the acute attack had subsided. His pulse was tolerably quiet, neither did he present any derangement of the heart's action, and, so far, had escaped one of the consequences of chronic disease of the lung—namely, dilatation and hypertrophy of the right ventricle. Observe, the most important features in this case, so far as treatment is concerned, were these: there was no general inflammatory condition of the system present; he had neither hot skin nor quick pulse; his expectoration was copious; the chest sounded well on percussion, and the only stethoscopic phenomena observed were extensive, minute, and moist bronchial rales.

The case then stood thus: extensive bronchial inflammation with copious expectoration, unaccompanied by fever, and occurring in a debilitated constitution. All weakening measures were therefore contra-indicated. It is true that the man had dyspnœa, and complained of tightness across his chest—circumstances which might appear to demand the use of the lancet or leeches; if these means had been employed, he would certainly have experienced some relief; but in the course of a few hours the symptoms of distress would have returned, the weakness superinduced by bleeding would give rise to increased secretion into the bronchial tubes, and the patient would be worse than before. Under these circumstances, we refrained from using the lancet or leeches; but, deeming it advisable to get rid of the last traces of inflammatory action, we ordered the following mixture:—

R Misturæ Amygdalarum, f̄ssij.
Nitratis Potassæ, ʒij.
Tartari Emetici, gr. j.
Tincturæ Opii Camphoratæ, f̄ss.

Fiat mistura pectoralis, cujus sumat cochleare unum amplum omni hora.

In explaining the rationale of this mixture, it is hardly necessary for me to state why the almond emulsion was used. In all cough bottles it is of importance that the basis should consist of some mild mucilaginous fluid; and hence we generally employ for this purpose demulcent sirups, emulsions made with olive oil, spermaceti, or almonds, or decoctions of mucilaginous seeds and roots. With the almond emulsion we combined tartar emetic and nitrate of potash—both antiphlogistic remedies, and calculated to act with peculiar effect in relieving congestion of the bronchial mucous membrane. You are aware that nitrate of potash in large doses is a powerful antiphlogistic, and you have seen it prescribed with excellent effects in cases of acute arthritis treated in this hospital. Nitrate of potash, when given to the amount of two or three drachms in the day, combined with two or three grains of tartar emetic, is next to bleeding the most efficient means we possess of reducing inflam-

matory action; and were I to be asked what remedies I should employ in combating inflammation—supposing there were no such things as the lancet, or leeches, or calomel—I should certainly say nitrate of potash and tartar emetic. When given in small doses, this combination proves also extremely serviceable in less severe cases, and it was on this account we gave it in the present instance. To this we joined the camphorated tincture of opium, convinced that its stimulant properties could not prove injurious when combined with antiphlogistics, although it would be improper to administer it alone. Experience has taught that when camphorated tincture of opium is given, in cases of chronic cough with expectoration, it will, if much inflammatory action be present, check the expectoration and bring on dyspnoea. But when combined with nitrate of potash and tartar emetic, its bad effects were corrected, while its sedative influence remained unimpaired.

In addition to this, I ordered the nitro-muriatic acid liniment to be rubbed over his chest. This liniment we are much in the habit of prescribing where a rubefacient is required. It is made by diligently mixing one drachm of nitro-muriatic acid and one ounce of lard, by means of a wooden or ivory spatula. When this mixture is complete, two drachms of oil of turpentine are added; these ingredients soon separate from, and mutually react on each other, so that the liniment becomes spoiled; we, therefore, never make it in large quantities. As his bowels were constipated, I gave him a pill composed of three grains of blue pill, quarter of a grain of colchicum, two grains of scammony, and half a grain of capsicum. Colchicum acts on the biliary secretion, particularly when combined with blue pill, and hence promotes the general action of the intestines. With these I combined a little capsicum, in consequence of the patient complaining of being annoyed by constant flatulence.

It is a curious fact, that every chronic derangement of the bronchial mucous membrane is accompanied by flatulence. Whether this arises from the irritation of the bronchial membrane spreading by continuity of tissue, and rendering the tongue foul, the stomach weak, and the digestive function unnatural; or whether the derangement of the bronchial mucous membrane, and the imperfect performance of the function of respiration, cause the secretion of air from the lungs to be diminished, in consequence of which air is secreted from the intestinal mucous membrane by a vicarious action—I cannot exactly state, but I think the latter hypothesis is not very improbable. It is well known that the mucous membrane of the stomach and bowels enjoys the power of secreting and absorbing air; it secretes carbonic acid, nitrogen, and also other gases which seem peculiar to it—such as sulphuretted hydrogen. I am not aware that there is any distinct evidence that the last named gas is ever secreted by the bronchial mucous membrane, but as there are some cases in which the breath is remarkably fetid, I think it remains for further experiments to decide whether it may not be so under certain circumstances. It is, however, by no means improbable that when an adequate cause produces considerable derangement in the respiratory function, and alters the nature of the aërial secretion from the lung, the mucous lining of the stomach and bowels may take on a vicarious action, and secrete gases analogous to those which in the normal state are secreted by the mucous membrane of the bronchial tubes.

I think I have seen some well marked examples of this translation of the function of secreting air from the pulmonary to the intestinal mucous system, in cases of spasmodic asthma and hysteria. I have seen patients who, previously to an attack of asthma, had no symptoms of flatulence, and

observed that, according as the disease proceeded and the derangement of the respiratory function increased, the bowels became distended with air. In hysteria, also, where derangement of the respiratory function is plainly denoted by the heaving of the chest, sighing, and dyspnoea, there is generally enormous and sudden inflation of the belly, loud borborygmi are heard, and there is a constant disengagement of air upwards and downwards.

But to return to our patient. After we had removed all traces of active inflammation, and the case had been reduced to one of ordinary chronic bronchitis, we changed his cough mixture for the following :—

R. Misturæ Ammoniaci, f3vj.
Carbonatis Sodæ, 3ss.
Tincturæ Opii Camphoratæ, f3ss.
Tincturæ Hyoscyami, f3j.
Vini Ipecacuanhæ, f3ij.

Fiat mistura pectoralis, ejus sumat cochleare amplum pro dosi.

The carbonate of soda was given with the view of removing some acidity of stomach which he complained of ; besides, it is a fact that alkalies produce good effects in many cases of pulmonary irritation, as must have struck you from witnessing the success of the popular remedy for whooping cough recommended by Mr. Pearson. You will observe, gentlemen, how very different this cough mixture is from the former ; it is much more stimulating, and at the same time more powerfully anodyne, the opium being here less diluted, and being aided by henbane ; the addition of ipecacuanha was introduced to prevent a too speedy action on the part of the other ingredients, in diminishing the expectoration and constipating the bowels.

I wish to call your attention to the plan of treatment, not with reference to this case alone, but with respect to chronic bronchitis in general. We first gave a combination of nitrate of potash and tartar emetic, with the view of removing any remaining traces of inflammatory action ; we next prescribed the ammoniacum mixture, with camphorated tincture of opium, carbonate of soda, &c. ; and, finally, when the cough became entirely chronic, we gave the compound iron mixture with tincture of hyoscyamus, in draughts, and an electuary consisting of sulphur, cream of tartar, and senna. I need not repeat what you will find in every treatise on materia medica, with respect to the use of the compound iron mixture ; it is not to be given until all traces of fever and local inflammation are removed, and never until the secretion from the lungs is copious, and expectoration free.

In such cases, the patient is generally weak, and the inordinate secretion adds to his debility. Here the compound iron mixture proves extremely serviceable, but you should commence its use with caution. Some persons are in the habit of giving it in doses of half an ounce, two or three times a day ; this I never do ; I begin with a drachm twice or three times a day, in an ounce of spearmint water, and add from half a drachm to a drachm of tincture of hyoscyamus. The dilution with mint water, and the addition of tincture of hyoscyamus, render it more valuable, by causing it to be more easily borne by the system, and less likely to be rejected by the stomach.

Let me now explain my reasons for ordering the following electuary :—

R. Electuarii Sennæ, 3ijj.
Bitartratis Potassæ, 3j.
Sulphuris Loti, 3ss.
Syrupi Zingiberis, quantum sufficit ut fiat electuarium, ejus sumat
cochleare unum parvum bis vel ter quotidie.

In the first place, when giving any stimulant medicine internally, it is essen-

tially necessary to attend to the state of the bowels; in the next place, keeping the bowels freely opened has a very remarkable effect in diminishing inordinate secretion from the bronchial tubes. Where the patient's strength can bear it, I often diminish excessive secretion from the lungs by strong hydragogue purgatives, as you saw in the case of a patient in the chronic ward, who had orthopnoea, and such an excessive secretion into the bronchial tubes as to threaten suffocation. The patient being a strong man, and having no symptom of intestinal irritation, I prescribed a bolus composed of a grain of elaterium, two of calomel, ten of jalap, and five of scammony, forming a powerful hydragogue purgative, which produced several fluid discharges. The man bore its operation well, and I repeated it in two days with the most decided benefit; indeed, he experienced from it more complete relief than he would have done from bleeding, blistering, or any other remedial means. In some cases of bronchitis with excessive secretion, you will be able to produce very striking effects by the use of hydragogue purgatives; this, however, will require both judgement and discretion, and it should be borne in mind that, in the majority of cases, there are many circumstances which contraindicate their employment.

With respect to the use of sulphur in this case, I was led to prescribe it in this and many other similar cases, from observing that chronic cough and long-continued congestion of the bronchial mucous membrane were more effectually relieved by the use of sulphureous waters, such as the Lucan and Harrowgate Spas, than by any other remedy that could be devised. I may here also observe that the Lucan waters produce very striking effects in diseases of the skin, and that I have seen intractable cases of psoriasis, which lasted for years, yield to the use of the Lucan waters.

It would appear that sulphur, when taken into the system, is either eliminated by the kidneys in the form of sulphates, or exhaled from the skin and mucous tissues in the form of sulphuretted hydrogen, and in this way we arrive at some explanation of its action in diseases of the skin, and chronic irritation of the bronchial mucous membrane. In fact, paradoxical as it may appear, sulphur, although evidently stimulating, is nevertheless very efficacious in curing many diseases connected with, or depending on, inflammation or congestion. Thus, exhibited internally and properly combined, what remedy gives such prompt and certain relief in that painful affection, piles? How rapidly does the specific irritation of the skin, termed scabies, yield to its use? These, and similar facts, which might be brought forward in abundance, ought to countenance the use of this medicine in certain chronic inflammatory affections of the bronchial tubes. The celebrated Hoffman was in the habit of adding sulphur to his cough prescriptions in all cases of chronic bronchitis in the aged and debilitated: and I have no doubt that from five to ten grains of sulphur, taken three or four times in the day, is one of the best remedies that can be prescribed in cases of chronic cough, accompanied by constitutional debility and copious secretion into the bronchial tubes. Within the last four years, my attention has been particularly directed to the use of sulphur in this and other affections, and I can state from experience that it is a most valuable remedy. As it has a tendency to produce elevation of the pulse, increased heat of skin, and sweating, it will be necessary to temper its stimulant properties by combining it with cream of tartar, which is a cooling aperient, and has the additional advantage of determining gently to the kidneys.* The addition of the electuary of senna gives additional value to the combination, and quickens its action on the intestines.

* Baglivi has well said, "In morbis pectoris ad vias urinæ ducendum est."

Such, gentlemen, are the principles that guided me in prescribing for this man. The long continuance of the complaint, the serious and extensive derangement of the pulmonary mucous membrane, the age, debility, and impoverished circumstances of the patient, forbid me to hope for a perfect cure; but he has been much relieved, and the same remedies applied to less desperate cases would have produced very striking effects. Still, if fortune were this moment to prove favourable to the poor fellow—if, when he leaves the hospital, instead of returning to hardship and exposure, he had the means of living in comfort, taking proper care of himself, travelling for health and amusement, and using a course of chalybeate spa waters,—I have little doubt that with these aids the reparative powers of nature would succeed in obliterating every trace of pulmonary derangement.

There is in the small chronic ward another case of chronic bronchitis, in a man named Murray. The case is of very long standing and has undergone many exacerbations. It is a case in which I am afraid a permanent cure is out of the question, and so far it is unsatisfactory; but it is still necessary to be acquainted with such cases, for it is a matter of some importance to be able to inform a patient whether his disease is curable or not, and how far it admits of being relieved by treatment.

In Murray's case we found, on examining the chest, that the minute bronchial tubes were extensively engaged, and they were obstructed by a copious secretion of mucus producing considerable dyspnoea. We found, however, that this condition had lasted for many months, and that the disease was essentially chronic. He had no fever; his skin was cool; his tongue moist; appetite and digestion good; and his pulse, which had been only 60 on his admission, sank to 46 after he had been in bed for some days. Such extreme lowness of pulse as this is a very remarkable circumstance, particularly in cases of pulmonary disease: it is seldom met with except in cases of cerebral affections.

Here was a man breathing twenty-six times in a minute, and with a pulse at 46; whereas, if the pulse was proportioned to the respiration it would have been much quicker. The relation of the number of respirations to the beats of the artery at the wrist should be as one to four; thus, when we breathe fifteen times in a minute, the pulse should be at 60. But here we find a man breathing twenty-six times in a minute, and yet his pulse is only 46. We had another instance like this, in a patient in the chronic ward, whose pulse was 60, while his respirations were thirty-six in a minute. It seldom happens, when pulmonary disease is in the acute form, and respiration considerably accelerated, that there is not a corresponding increase in the frequency of the pulse; but, in chronic cases of this description, the system becomes gradually accustomed to the derangement; the continued acceleration of breathing ceases to affect the action of the heart; the lung which is obstructed by disease in the performance of its functions, contrives, by working more frequently, to aerate the requisite quantity of blood, and, the heart adapting itself to the change of circumstances, the pulse returns gradually to the natural standard. I have seen many cases of phthisis in which there was accelerated breathing, with slow pulse, but these were always cases of a chronic kind. I have never observed the same phenomena co-existing when the disease was acute; it is a state of things which is compatible only with chronicity of disease, in which the system becomes gradually accustomed to the change, and a kind of artificial equilibrium is finally established.

In this case we find that a man of tolerably good constitution, after exposure

to cold, gets an attack of bronchitis, which becomes chronic, and extends almost over the whole lung. He has a cough always existing, sometimes better, sometimes worse, occasionally aggravated. This cough is accompanied by a copious secretion of mucus; and this state of things continues for more than twelve months. Now, when bronchitis has lasted so long in persons of his class of life, it is very difficult to be cured; poverty, want of proper clothing, his liability, from the nature of his employment, to the ordinary exciting causes of bronchitis, and the habitual disregard of self so constantly observed in persons of this description, are all circumstances which forbid us to entertain any hope of giving permanent relief.

There are two points to be attended to in the treatment of this and every other case of chronic bronchitis; first, whether there be any recent attack, and consequently any fever and exacerbation of the local symptoms present; and, in the next place, whether the secretion from the bronchial mucous membrane be copious or scanty. Now, at the period of this man's admission, there was some slight excitement of the pulse, but there was no fever nor increase of bronchial inflammation present, and the heart's action was apparently not influenced by the state of the lung. In addition to this, there was no urgent dyspnoea, and the secretion from the lungs was extremely abundant. We therefore commenced by administering an emetic, which was repeated for two or three days, and then prescribed the following mixture: compound iron mixture, $\text{f}\text{ʒ}\text{ij}$; tincture of squill and tincture of hyoseyamus, of each, min. xx.; mix; to be taken three times a day in an ounce of almond emulsion.

In chronic bronchitis, where no fever, no remarkable dyspnoea or acceleration of the pulse is present, and where the bronchial secretion is very copious, you will be able to produce very good effects by giving an emetic every night for two or three nights, before you begin with remedies calculated to arrest the supersecretion from the lung. They are productive of a double advantage in such cases: a large quantity of mucus is discharged from the stomach and lungs, expectoration is rendered more easy, the tongue becomes clean, and the appetite is improved. It was on this account we gave them in the present case, and, as you have perceived, with much benefit.

In no disease are we more apt to have a foul, loaded, and furred tongue, than in bronchitis. This stage of the tongue, being usually accompanied by loss of appetite and indigestion, is frequently attributed to a bad stomach. Now the truth is, that in such cases the state of the tongue and the state of the stomach are both produced by one and the same cause, viz., the unnatural state of the bronchial mucous membrane. In the latter tissue the train of morbid actions commenced, and from it was derived that source of irritation which, inducing disease in the bronchial mucous membrane, caused a state of parts rapidly propagated along that membrane to the mouth and tongue on the one hand, and to the stomach on the other. We afterwards had recourse to a tonic and astringent chalybeate—the compound iron mixture—with the view of improving the general system, and checking the superabundant secretion from the bronchial tubes. The action of a chalybeate is not merely limited to strengthening the tone of the stomach and general system; it is also well calculated to arrest the superabundant secretion from mucous surfaces in many chronic fluxes, and hence its utility in gleet, diarrhoea, and chronic bronchitis. We gave the compound iron mixture in preference to a simple chalybeate, because the other ingredients—namely, myrrh and sub-carbonate of potash—have a tendency to produce the same effect.

I do not prescribe this medicine in such large doses as it is frequently

ordered, and I never give it alone. I order a drachm or two to be taken three times a day, and I dilute this quantity by adding to it half an ounce or an ounce of almond emulsion or mint water. In this form it is a much safer remedy in the treatment of fluxes depending on chronic inflammation, and its exhibition is much less likely to be followed by sinister accidents. I have in the present instance combined with it a small quantity of squill; the reason of making this addition is so obvious, that it is unnecessary for me to do more than notice the fact. I have also added some tincture of hyoscyamus, which is an extremely valuable sedative in the treatment of many forms of pulmonary disease.

However well planned this treatment seemed to be, it did not succeed. After taking the mixture for a day or two, the man began to complain of tightness across his chest, and we were obliged to give it up. I have already stated, that in cases of this description, where the patient is using remedies to arrest secretion, you should be cautious in administering them at first, and attend carefully to their effects. If, after a patient has been using a chalybeate, or any remedy administered for similar purposes, you find that constriction of the chest and dyspnoea are increased, no matter whether the secretion is diminished or not, you may be sure that you are doing more harm than good. When the remedy acts favourably, you may know by the following signs:—respiration becomes less frequent, and is performed with less distress, the expectoration becomes more free, the sputa begin to assume the globular form, the quantity is diminished, and it is less tenacious and viscid in its consistence. When you give a stimulant, therefore, in chronic bronchitis, you must watch its effects with care, and if it produce any increase in the difficulty of respiration, or any pain or tightness of chest, you must omit it altogether, and pass to an expectorant of a less irritating character. In this case we stopped the use of the compound iron mixture, and immediately ordered the patient to take a grain of tartar emetic in a pint of whey. This simple remedy succeeded in a very remarkable manner, producing, on the first day, a very considerable alleviation of symptoms.

Permit me here, gentlemen, to direct your attention for a moment to the influence which mercury exercises over inflammatory affections of the joints, and over certain forms of inflammation of the mucous membrane. I, in common with most practitioners, look upon mercury as a most valuable remedy in the treatment of arthritic inflammation, and in certain forms of bronchitis, but I do not, however, advise its indiscriminate employment, or bid you mercurialize every case of bronchitis or arthritic inflammation; you can cure very many cases of both without mercury, and you should only have recourse to it in emergencies, and where other remedies have failed. In treating bronchitis in general, I always try bleeding, leeching, blisters, and expectorants, before I have recourse to mercury. But where these fail, and the disease continues to wear a threatening aspect, you will often find that mercury will cure it in a very rapid and surprising manner.

You had an example of this in a boy who was lately under treatment in the chronic ward. He had severe laryngitis, with extensive inflammation of the smaller bronchial tubes, great dyspnoea, and considerable congestion of the lung; and you perceive that the moment he came under the influence of mercury, all his symptoms were ameliorated. We gave the mercury originally for the laryngeal affection, but, in giving it, remarked that it would also cure the bronchitis, and such was actually the case. Observe, I do not give mercury in bronchitis as a general rule,—it is often unnecessary, and even

sometimes wholly inadmissible. I will except from this that severe form of bronchitis, with congestion of the lung, in children after measles, which is best treated with calomel and ipecacuanha, as recommended by Dr. Cheyne. Many children were lost by severe attacks of this form of bronchitis, and by whooping-cough accompanied by congestion of the lung, until Dr. Cheyne hit upon this simple but effectual plan of treatment. But in ordinary bronchitis of an acute character, and producing a tendency to congestion of the lung, I do not prescribe mercury until other means have failed.

Now I believe every practical man is aware that mercury is one of the best remedies we can employ in many cases of acute and subacute bronchitis; but perhaps it is not generally known that even in some cases of chronic bronchitis, that is to say, where the patient labours under chronic catarrh with asthmatic symptoms, not only relief, but even a complete cure, is occasionally effected by the use of mercury. One of the first cases of this kind which struck me very forcibly was under the care of Mr. Porter. The patient, who laboured under an attack of venereal laryngitis, had at the same time chronic bronchitis, with puriform expectoration and hectic, and as the use of the stethoscope was not then well understood, was supposed to be labouring under phthisis. From the violence of the laryngeal symptoms, however, Mr. Porter was obliged to give mercury, which not only arrested the laryngeal inflammation, but also cured the chronic bronchitis.

I recollect, also, the case of an elderly gentleman, treated by Surgeon Mitchell, for an attack of very long-continued bronchitis, with asthmatic symptoms, and who was subject to paroxysms of coughing and violent dyspnoea, which sometimes lasted for twelve hours together. Now this gentleman, after the failure of various remedies, took mercury, and with the most marked and permanent relief of his pulmonary symptoms. I was, it must be confessed, greatly surprised by the effects of mercurialization in this case, and it was quite a novel thing to me to witness a chronic, a very chronic bronchitis, with copious expectoration and frequently recurring dyspnoea, aggravated so as to endanger life by the least cold,—it was, I say, novel to me to see a patient so affected radically cured by a mercurial salivation. Perhaps, however, nothing but the absolute refusal of the disease to yield to other remedies could authorise the adoption of such a plan in the present state of our knowledge.

LECTURE XL.

BRONCHITIC ASTHMA.—COUGH.

THERE is a patient about to leave the hospital to-day on whose case I wish to make some observations. This young man, whom you have seen lying in the chronic ward, in the bed next but one to Byrne's, caught cold about seven or eight months ago, followed by cough, wheezing, and dyspnœa, which, after a month or six weeks, subsided. About two months before he came into the hospital, he renewed his cold, and with it the cough and dyspnœa returned. On his admission, he complained of difficulty of breathing, which attacked him every night; he went to bed well, and slept tranquilly for two or three hours, and then was awakened by pain and sense of tightness in the chest, with great dyspnœa. When the paroxysm came on, it compelled him to get up and walk about the room, gasping for breath; and, after continuing for two or three hours with great dyspnœa, wheezing, anxiety, and cough went off with free expectoration and sweating. As soon as the sweating and expectoration appeared, he lay down without any inconvenience, and slept quietly until morning. The only additional symptom he complained of was palpitation of the heart, which sometimes affected him when employed at hard labour. On examining the lungs, there was nothing found except a few bronchitic rales. The heart was normal in its action, and no morbid sound could be detected by the stethoscope. In addition to this, you will recollect that the man was in the prime of life, had a full and well-formed chest, a quiet pulse, regular bowels, and a good appetite.

Here you perceive a man from repeated colds gets chronic irritation of the bronchial tubes, and this induces asthmatic paroxysms, which come on, as is usual in such cases, at a certain hour of the night. It was plain, therefore, that he was labouring under a well marked form of asthma, a disease which, in its pure and simple state, is seldom met with in hospitals, being generally observed in connexion with disease of the heart, or long continued bronchitis in old persons. Chronic bronchitis is one of the most common causes of asthma; indeed, you will scarcely ever meet a patient who has been subject to chronic irritation of the bronchial tubes, who does not also labour under more or less asthmatic dyspnœa. The disease is generally met with in persons advanced in life, and who have suffered from repeated attacks of bronchitis; it is not usual to find it in so young a man as this patient, and presenting, as he does, such very slight symptoms of derangement of the bronchial mucous membrane.

This case exhibits a remarkable proof of what may be done by simple means in relieving an urgent disease. The man was, with the exception of asthma, in good health; his bowels were regular, his appetite good, his pulse tranquil, and the signs of pulmonary irritation trifling. There was no necessity, then, for administering remedies to improve the tone of the digestive organs, nor were we authorised to use the lancet or apply leeches. I therefore

confined my attention to two points : the application of irritants to the neck and chest externally, and the internal use of remedies calculated to relieve bronchial irritation. I ordered him to rub the nape and sides of the neck and the fore parts of the chest with a liniment composed of strong acetic acid, 3 ss. ; oil of turpentine, 3 iij. ; rose water, 3 iss. ; essential oil of lemons, a few drops, and yolk of egg in sufficient quantity to suspend the turpentine. This liniment is an imitation of the celebrated liniment of St. John Long. The exact formula made use of by that celebrated quack was, I believe, never authoritatively made public, but it is supposed on very good grounds to have been as follows :—The yolk of an egg ; oil of turpentine, fʒiss. ; strong acetic acid, fʒi. ; pure water, fʒiij. ; first rub the yolk of egg, the water, and the acetic acid together, then add the oil of turpentine, and agitate the whole until they are well mixed.*

The active ingredients are the oil of turpentine and strong acetic acid. The chief objection to the use of this liniment is its disagreeable smell, which may be somewhat alleviated and its rubefacient powers at the same time increased by the addition of a drachm of oil of rosemary : it should be applied by means of a sponge. It acts as a rubefacient, and generally induces an eruption of small pimples after a few applications.

With this liniment our patient was desired to rub the fore part of the chest and the nape and sides of the neck. It was applied to the chest with the view of relieving the bronchial irritation, and we ordered it to be rubbed over the nape of the neck, along the course of the cervical portion of the spinal marrow, and over the sides of the neck along the course of the pneumogastric nerve, because all the organs to which the latter nerve is distributed are evidently affected in cases of spasmodic asthma. Thus, a paroxysm of asthma is not only attended with increased action of the heart, dyspnoea, and hurried breathing, but also with marked derangement of the stomach, particularly towards the termination of the fit, when the patient generally has a feeling of uneasiness in the stomach, with flatulence and a sense of fulness, induced probably by the derangement of circulation in the lung. You are aware of the close sympathy which exists between the stomach and lungs, and you must have been struck with the fact, that stimulant and irritating remedies applied to the epigastrium often relieve affections of the lung more completely than when applied to the chest. Thus, in using the tartar emetic ointment for the relief of hooping cough, it has been found to act most beneficially when applied over the region of the stomach ; and the same thing may be said of Roche's embrocation, which does more good when rubbed over the spine or epigastrium, than when applied to the parietes of the thorax. On these principles I ordered the counter-irritation to be applied over the course of the cervico-spinal and pneumogastric nerves, over the chest, and subsequently over the stomach.

This liniment in a very short time produces redness and heat of the parts to which it is applied, and it is more than probable that its effects are not limited to temporary rubefacience, but that it also acts on the nervous system. We have innumerable proofs that turpentine exercises a special influence

* An anecdote is told of St. John Long, which is a good illustration of the knowledge of chemistry requisite for prescribing : being anxious to use a still stronger counter-irritant in some cases, he added some water of ammonia with that view to the liniment prepared as I have now described ; but, to his great surprise, instead of being stronger, it had lost all its previous powers ; the water of ammonia combining with the acetic acid formed acetate of ammonia, and thus deprived that acid completely of its irritant properties !

over the nervous system, and we know that it is rapidly absorbed even without the aid of friction. I fear, however, that we shall never be able to confer on our liniment all the wonderful properties attributed to that of St. John Long. You know it has been asserted that St. John Long's liniment never reddened the skin, except over the exact spot where disease was situated. I was assured by a young lady who used this liniment, that she rubbed it all over the chest, and that it produced no discoloration of skin, except in two spots where she felt pain. She at first mentioned but one spot which was painful, but St. John Long having applied the liniment himself, told her she had deceived him, and that there was pain in another spot.

It had other effects equally miraculous. An eminent Dublin lawyer declared that it drew nearly a pint of water from his head, and Lord Ingestre testified that it extracted quicksilver from his brain! These, and other wonderful stories, told by several persons of distinction with a full belief in their authenticity, furnish a useful lesson to mankind, showing that gross credulity is not confined exclusively to the poor and the ignorant, but may be found among the highest classes of society. It is a singular fact also, and illustrative of the tendency which exists in human nature to deceive and be deceived, that notwithstanding the repeated failure, and even fatal effects, of St. John Long's applications, many persons long regarded his opinion as oracular, and looked upon his remedies as inestimable discoveries. When I mentioned to the gentleman who brought me a bottle of the liniment that St. John Long himself died of phthisis, and brought this forward as a strong argument against the infallible efficacy of his remedies, he said that this very circumstance was one of the most remarkable proofs of his sagacity, for St. John Long had always maintained that the liniment was not suited to his own case, and that there was something in his constitution which neutralised its good effects; and so it happened, for when he applied the liniment to his skin it did not produce the red spots which usually resulted from its application in other persons. In fact, such was the credulity of St. John Long's patients, that his death passed among them as the strongest proof of the infallibility of his medicines. Indeed he was considered by many of our nobility as a sort of medical martyr, who, having sacrificed life in the accomplishment of his mission, rising from earth, let his mantle fall on the highest bidder!

But to return to our patient. In this case the liniment did a great deal of good, but it was not the only means we employed. We observed that the asthmatic paroxysm came on every night, continued for two or three hours, and then went off with free expectoration and sweating. In order to prevent this, we gave him a draught which he was to take when awakened by the pain and sense of tightness in his chest. He took this, and it had the effect of arresting the paroxysms, so that he no longer found it necessary to leave his bed. That this remedy had succeeded in averting the disease was plain from the following circumstance:—one day the clinical clerk had omitted to repeat his draught, and he consequently got no medicine; on that night the asthmatic paroxysm returned and went through its usual course as before. This draught was very simple, being composed of half a drachm of tincture of hyoscyamus, half a drachm of vinegar of squills, and the same quantity of ipecacuanha wine in an ounce of camphor mixture. It is scarcely necessary for me to explain the intention of the ingredients. The tincture of hyoscyamus possesses narcotic and antispasmodic properties, and ipecacuanha and squill are known to have great efficacy in disease of the bronchial mucous

membrane, being both promoters of expectoration, and the latter also acting on the urinary organs. Without, however, attempting to explain the precise mode in which each of these ingredients acted, it will be sufficient to state that the combination had a beneficial effect, and checked the asthmatic paroxysms. We persevered in using it, as well as the liniment, until all tendency to asthma had disappeared, and the normal state of the function of respiration became perfectly re-established.

Permit me, gentlemen, to make a few observations here on the chief symptom of diseases of the lungs, or what is popularly termed cough. What is cough? A sudden and violent expulsion of air from the lungs, produced by forcible contraction of the diaphragm, aided by the abdominal and other expiratory muscles. What is the cause of cough? Pulmonary irritation. What is the nature of this pulmonary irritation?

Here, gentlemen, is a question which every practitioner should put to himself when called on to treat a case of cough, and what affection is there which so frequently demands our assistance, and tasks our ingenuity? How abundant, how varied are the examples of cough we meet with in our daily practice! How obscure do we not find its nature on many occasions, and how difficult and perplexing its treatment! When the source of irritation is manifest, where the nature of the disease is simple and easily detected, where, after a proper examination we can point to some part of the respiratory system and say, here is the seat of the disease; in such cases, indeed, our course is sufficiently clear; we may proceed with confidence, and practise with success. But how often are we, after weeks and even months of close and painful attention, baffled in our best-directed efforts, and forced to admit the humbling conviction that all our remedies are inefficient and useless, and that our character, as well as that of the profession, is likely to suffer in public estimation! How often, too, do we discover with surprise, that the cough which he had been treating for weeks as a pure pulmonary affection, depends not on any primary derangement of the respiratory system itself, but upon the irritation of some distant organ, or upon peculiar conditions of the whole economy!

Before I proceed to inquire into the nature of the various sources of pulmonary irritation producing cough, I wish to remark that the exciting cause, or, in other words, that which immediately precedes and seems to give rise to a tendency to cough, is a sensation of tickling in the mucous membrane of the trachea, close to its bifurcation, and opposite the hollow at the fore part of the neck. It is also a curious fact, that this sensation of tickling or itching is peculiar to this situation, being never felt in any other part of the pulmonary mucous system. Whether the disease be seated above, as in case of laryngeal affections, or whether it be below, as in case of disease of the lining membrane, or parenchyma of the lung, *it is here alone that the tickling sensation is felt.*

Another circumstance equally remarkable, and equally difficult of explanation, is the effect of position in cough. Persons labouring under slight bronchitis, or rather slight inflammation of the trachea, who scarcely cough half a dozen times in the course of the day, will, the moment they lie down at night, be seized with a violent and harassing cough, which may last for several minutes, and sometimes for hours, with little intermission. We can easily understand why empyema or pneumonia of one side of the chest may produce cough in certain positions and not in others, for here we have an obvious physical cause: the accumulated fluid in the pleural cavity in the

one case, and the diseased lung, whose specific gravity has been much increased by solidification, in the other, exercise an inconvenient degree of pressure on the sound lung, and hence give rise to irritation and cough, particularly in those positions which favour the operation of such physical causes of irritation.

Here, however, the cause of irritation is very obscure. It may (but this I merely offer as an hypothesis) depend on the fluid secreted by the mucous membrane trickling over that part of the trachea where the tickling sensation is felt, the flow of mucus to this part being favoured by the recumbent position. That it does not depend on any supposed temporary congestion and irritation of the lung, from the impression made on the skin by cold bed-clothes, I am quite convinced, for I have repeatedly observed it in persons warmly dressed, from merely lying down on a sofa close to the fire. You will, therefore, bear in mind, gentlemen, that although usually, when coughing is induced by any sudden change of position, we may infer that it is connected with some serious lesion of the lungs or pleura, yet we must not attach too much importance to this symptom, for cases are occasionally met with, in which mere tracheal or bronchial inflammation is attended with the same symptom to a very remarkable degree.

I may observe, *en passant*, that the sensation of tickling or itching appears to be almost exclusively confined to the skin. Here it appears to be dependent on slight causes, apparently incapable of producing that modification of nervous sensation termed pain. In other cases it seems to be connected with the rise and decline of the phenomena which indicate inflammatory action, arising, in the first case (where it is generally less observable) from that nervous modification which precedes inflammation; and, in the second, being connected with some change in the nerves of the part which announces its return to a healthy condition. It does not appear to affect the mucous tissues, except in a slight degree and under peculiar circumstances. It is not observed in the pulmonary mucous tissue, except at that part of the trachea which I have already mentioned, and it does not occur in any part of the intestinal mucous membrane. The only parts connected with the intestinal tube in which it is felt, are the nose and the anus, and here it is within the reach of scratching, the ordinary mode of relief. This is a fortunate circumstance, gentlemen, for if any part of our bowels were to itch as your skin sometimes does, the annoyance would be quite intolerable. If the presence of lumbrici in the small intestines, instead of producing a troublesome itching of the nose—if it produced, I say, a degree of itching equally intense in the mucous membrane of the bowels and stomach, what patient could endure greater torments than a person so afflicted? If ascarides gave rise to as intense a degree of itching within the colon as they occasion at the verge of the anus, how dreadful would be the sufferings thus endured!

Passing over the obvious and well known sources of pulmonary irritation, producing cough, such as bronchitis, pneumonia, &c., the first cause to which I shall direct your attention is one of not unfrequent occurrence, and where a mistake in diagnosis may lead to a practice useless to the patient and discreditable to the practitioner. The best mode of illustrating this is by giving a brief detail of a case which I attended with Dr. Shekleton. A young lady, residing in the neighbourhood of Dorset-street, was attacked with symptoms of violent and alarming bronchitis. The fits of coughing went on for several hours with extraordinary intensity; the cough was dry, extremely loud, hollow, and repeated every five or six seconds, night and day, when she was

asleep as well as when she was awake. Its violence was such that it threatened, to use a vulgar but expressive phrase, to tear her chest in pieces, and all her friends wondered how her frame could withstand so constant and so terrible an agitation; and yet she fell not away proportionally in flesh, had no fever, and her chest exhibited nothing beyond the rales usually attendant on dry bronchitis.

She was bled, leeches, blistered, and got the tartar-emetic mixture, but without experiencing the least relief. We next tried anti-spasmodics, varying and combining them in every way our ingenuity could suggest; still no change. We next had recourse to every species of narcotic, exhibiting in turn the different preparations of conium, hyoseyanus, opium, and prussic acid, but without the slightest benefit. Foiled in all our attempts, we gave up the case in despair, and discontinued our visits. Meeting Dr. Shekleton some time afterwards, I inquired after our patient, and was surprised to hear that she was quite recovered and in the enjoyment of excellent health. *She had been cured all at once by an old woman.* This veteran practitioner, a servant in the family, suggested the exhibition of a large dose of oil of turpentine, with castor oil, for the purpose of relieving a sudden attack of colic; two or three hours afterwards the young lady passed a large mass of tape worm, and from that moment every symptom of pulmonary irritation disappeared.

The next kind of cough, in which the cause of pulmonary irritation is often misunderstood, is that which occurs in hysteric females. This cough constitutes one of the most alarming diseases in appearance you can possibly witness; in some, it is loud, ringing, incessant, and so intensely violent, that one wonders how the air-cells or blood-vessels escape being ruptured. In others, it is quite as incessant, occurring every two or three seconds, night and day, but is not very loud, and, indeed, in some it scarcely amounts to more than a constant teasing hem; in general the pulse is quick, but it is the quick pulse of hysteria, not of inflammation or fever. The patient suffers no aggravation of the cough from inspiring deeply, and her countenance exhibits no proof of mal-aëration of the blood; on the contrary, it is blanched and pallid. She complains of variable or deficient appetite, headache, cold feet, and irregular or absent catamenia, and notwithstanding the cough continues for weeks or even months, she does not become emaciated like a person in incipient phthisis, although so much disturbed by the cough, and subsisting on so small a quantity of food.

Here the history of the case, a knowledge of the patient's habits, and the use of the stethoscope, are of great value. You will find that the patient is subject to hysteria, that she is generally pale and of a nervous habit, that the attack came on suddenly, and was superinduced by mental emotion, or some cause acting on the nervous system, or else arose gradually as one of the sequelæ of catamenial disturbance; that the heat of skin and state of pulse are by no means proportioned to the violence of the symptoms, and the stethoscope will tell you that the signs of organic derangement of the lung are absent. You will thus be enabled to arrive at an accurate notion of the nature of the disease, and you will save the patient from the useless and often dangerous employment of antiphlogistic means. Bleeding and leeching are, generally speaking, injurious; such cases are best treated by stimulants, anti-spasmodics, and stimulant purgatives, together with change of air, travelling, and the use of chalybeate spa-waters.

The third species of obscure cough to which I shall direct your attention

is one of deep importance for many reasons. It is that species of cough which depends upon pulmonary irritation connected with a venereal taint in the system. That syphilis may attack the pulmonary as well as the cutaneous, osseous, mucous, and other tissues, is not a discovery of modern times ; it is a form of the disease long known, and you will find it mentioned by many of the old writers.* Since syphilis has been classed by Willan and others among diseases of the skin, this notion seems to have been either abandoned or forgotten, but, as it strikes me, with very little justice. I entertain a firm conviction that syphilis may affect the pulmonary as well as it does the cutaneous, or mucous, or osseous tissues, and that a patient, labouring under a venereal taint, may have irritation from this cause set up in the lung as well as in any of those organs in which it is usually manifested.

The first person who mentioned this circumstance to me was the late Mr. Hewson, and since that time I have had repeated opportunities of confirming the truth of his opinion. Richter, Alibert, and Paget have well observed, that Willan and Bateman's classification of diseases of the skin is liable to the paramount objection, that it has no reference to the constitutional origin of cutaneous affections. I have the very same fault to find with modern treatises on diseases of the lungs. Pathologists have indeed inquired most accurately into the numerous morbid changes to which the pulmonary tissue is subject, but they have omitted a no less important part of their task, which is to investigate the states of constitution which originated these changes. The agency, indeed, of scrofula has been investigated with care, but how little attention has been paid to rheumatism, gout, syphilis, and scurvy, the fruitful sources of numerous diseases of the chest.

By far the most interesting point connected with this affection is its diagnosis ; on this everything depends. The great importance attached to the diagnosis arises from the circumstance of this disease presenting symptoms analogous to, and consequently frequently confounded with phthisis. A patient comes to consult you for cough ; you find him pale, emaciated, and feeble ; he sleeps badly, and is feverish at night, and has a tendency to sweat. Here there may be a double source of error. If the disease be mistaken for tubercle, and mercury not given, bad consequences will result ; on the other hand, if tubercles be present, the effect of administering mercury may be to precipitate the disease to a fatal issue.

What is the nature of this disease, and how are you to recognize it ? Mainly, I answer, by the history of the disease. If the patient's sufferings have commenced at that period of time, after primary sores on the genitals, when secondary symptoms usually make their appearance ; if some of his complaints are clearly traceable to this source ; if along with debility, night-sweats, emaciation, nervous irritability, and broken rest at night, we find cough ; and if this group of symptoms is associated with others, evidently syphilitic—such as periostitis, sore throat, and eruption on the skin—then we may with confidence refer all to the same origin, and may look upon the

* The Germans were also aware of this circumstance. " Auch das Quecksilber hat die Empfehlungen einiger Aertze, und noch neulich Hecker's erhalten. Demungeachtet passt es als ein stark Oxydirendes Mittel in der Lungen schwindsucht nicht, am wenigsten in der Phthisis pulmonalis ulcerosa. Höchstens kann es seinen Platz in der Phthisis tuberculosa finden, wo diese namlich scrophulösen oder syphilitischen Ursprung ist, jedoch auch hier nur in Anfange der krankheit, und stets nur in Verbindung mit dem opium und dem Hyosciamus."—*Ueber die Erkenntniss und Cur der Chronischen Krankheiten des Menschlichen Organismus*, von Dr. Wilhelm Andreas Haase.

patient as labouring under a syphilitic cachexy, affecting the lungs as well as other parts.

In forming this diagnosis much caution and care are necessary, and we must not draw our conclusion until we have repeatedly examined the chest by means of auscultation and percussion; if these fail to detect any tangible signs of tubercles, or if we discover only a trifling amount of disease in the lungs, whilst the constitutional symptoms are those that usually attend the advanced stages of phthisis, we may then proceed to act upon our decision, and may advise a sufficient but cautious use of mercury. Under such circumstances, it is most pleasing to observe the speedy improvement in the patient's looks and symptoms; the fever, night-sweats, and watchfulness diminish; he begins to get flesh and strength, and, with the symptoms of lues, the cough and pectoral affection disappear. I am not prepared to say which of the pulmonary tissues is most usually attacked by the venereal poison, but I believe that it chiefly tends to the bronchial mucous membrane, although, like other animal poisons—for example, those of measles and scarlatina—it may also occasionally produce pneumonia.

I cannot forbear reading for you here a passage from Dr. Stokes' valuable work on *Diseases of the Chest*, in confirmation of the views I have now advanced:—"My friend Dr. Byrne, whose situation as a medical officer to the Lock Hospital gives him the greatest opportunities of observation, informs me that he has, in many instances, seen patients who had been formerly diseased, and who had come into hospital either for new sores or for gonorrhœa, attacked with intense bronchitis and fever. This attack would come on suddenly, and the distress was so great that bleeding had to be performed, the effect of which was that soon after a copious eruption, often combining the lichenous and squamous forms, made its appearance with complete relief of the chest. In some of these patients, on the day before the eruption, the stethoscopic signs had been those of the most intense mucous irritation; and yet, when the skin disease appeared, *the respiration became either perfectly pure or only mixed with an occasional roushus in the large tubes.* The same gentleman has observed the reverse of this, as when a syphilitic eruption has been repressed, the bronchial membrane has become much engaged, and the patient affected with general febrile symptoms. These phenomena subsided after bleeding and mild diaphoretics, which had the effect of restoring the cutaneous eruption. Here we have an additional evidence in favour of the analogy between this syphilitic bronchitis and that of the exanthema."

The fourth species of obscure pulmonary irritation producing cough is that which is connected with a gouty diathesis. Gout may attack almost every tissue in the body. We may have it in the joints, as you are all well aware; we may have it in the muscles and muscular aponeuroses, forming what has been termed rheumatic gout; it occurs frequently in the fibrous tissues, and I have several times observed it in the areolar substance of various parts of the body, forming either diffuse œdema or tumours, which are exceedingly tender to the touch, and are removed by treatment calculated to relieve the constitutional affection. It may attack the heart, giving rise to true pericarditis, or else to a functional disease with palpitations—a sensation of fluttering and sinking about that organ, and very remarkable intermission of the pulse; or it may affect the stomach, occasioning dangerous spasms or various dyspeptic symptoms; or it may seize on the intestines, producing irritation, colic, and gouty diarrhœa.

I remember a patient, of a confirmed gouty habit, expressing a great deal

of surprise at getting an attack of gout in the testicle, for he could not conceive how a disease which generally affects the joints could occur in an organ so different in its nature. I replied that it could easily be explained; because fibrous tissue, which gout most frequently attacks, enters into the composition of the testicle as well as that of the joints. Indeed the testicle, with reference to the texture of its envelopes and the extent of motion it enjoys, may be said to be provided with a sac-like joint.

In like manner, gout very frequently attacks the mucous membrane of the trachea or bronchial tubes, causing a dry, annoying, and often a very obstinate cough. Where this cough comes on along with the fit of inflammation of the joints, its true nature is frequently overlooked, and it is believed to have originated in cold, and to be mere common bronchitis. No matter what be the cause of inflammation in a gouty habit—no matter what the organ attacked by the inflammation be—it almost invariably assumes the character of true gouty inflammation. If a gouty person sprains a toe or an ankle, matters, after progressing for a time in the ordinary way, are sure in the end to exhibit a change of character; and the inflamed parts are observed either to grow unexpectedly worse, or to become stationary, at a time when a speedy termination of the local affection seemed approaching. This is owing to its being now modified by the constitutional tendency to gout, which localises itself in the affected part. Precisely the same relations may be often observed between common bronchitis, produced by cold in a gouty habit, and the gouty bronchitis it indirectly produces. Gouty bronchitis often becomes chronic, continuing until it is relieved by a regular fit of gout in the extremities.

The fifth species of pulmonary irritation, in which the source of the disease is more or less obscure, is that which is connected with the scorbutic diathesis. It is important to be aware of this, particularly for those who have charge of the health of the poorer classes, which is almost of more value than that of the rich, for on it their labour and their means of support depend. Among the poor, particularly in cities where the majority live on provisions not sufficiently nutritious, the scorbutic diathesis is very prevalent. It manifests itself either in the form of purpura, or in tendencies to hemorrhage from the nose, stomach, bowels, or bladder. It sometimes attacks the lungs, producing irritation of the bronchial mucous membrane, with cough and spitting of blood, and occasionally gives rise to pulmonary apoplexy. It is evident that pulmonic cases of this nature, originating in a scorbutic diathesis produced by confined air, damp lodging, and insufficient diet, will require a treatment peculiar to themselves, both during the attack and during convalescence.

The last source of pulmonary irritation to which I shall direct your attention, is that which proceeds from scrofula. You all know that scrofula has a tendency to attack every tissue in the body, but you may not perhaps be aware that it may affect those tissues in very different ways, and that scrofulous irritation may manifest itself in various forms, from the most trifling and transitory to the most extensive and permanent. I recollect a case I attended with Dr. Jacob, in which this fact struck me very forcibly. A fine boy, of high complexion, precocious intellect, and other marks of the scrofulous diathesis, got an attack of scrofulous ophthalmia of an intense character, and it required all the skill and ingenuity of Dr. Jacob to save him from blindness.

During the period of our attendance, his brother (who was also of a strumous habit) began to complain of parts of his arm being sometimes a little sore. This circumstance attracted my attention, and on examination I

found that several circular diffused swellings of various sizes, often equaling half a crown in diameter, had successively appeared on different parts of his extremities and body. They evidently depended on inflammation of the sub-cutaneous areolar tissue, and exhibited a remarkable example of a most transitory local affection, produced by a constitutional cause—for these swellings arose, arrived at their acme, and subsided in the space of ten or twelve hours: they constituted, in truth, the first efforts of the scrofulous diathesis to localise itself, and, after a few weeks continuance, they were replaced by distinct and *fixed* scrofulous inflammation of the metatarsal bones.

Here was a very curious and instructive fact. A boy, evidently of a scrofulous diathesis, has circumscribed tumours, which arise, come to maturity, and subside in the course of a few hours. In some weeks afterwards, scrofulous irritation, in a decided and permanent form, fixes itself in the foot, producing inflammation and ulceration. From this it may be inferred that scrofula (for in this case I am firmly convinced these tumours were connected with a strumous diathesis) may attack parts not only in its more permanent and destructive forms, but also in a manner so trifling and so transitory as to subside in a few hours, and leave no trace of its existence. The inferences deducible from this fact are numerous and important; for if the scrofula may thus produce an acute and transitory inflammation of the sub-cutaneous areolar tissue, surely it may occasionally give rise to somewhat similar affections of internal organs—as the bowels, the lungs, &c.—and thus may occasion an acute bronchitis, a pneumonia, or an inflammation of the mucous membrane of the intestines, totally independent of the operation of cold, or the usual causes of such affections. It has been too much the custom to refer chronic and fixed local inflammations to the agency of constitutional causes only. The example before us proves that even the most transitory may have this origin.

Scrofulous irritation may affect either the lining membrane or the parenchyma of the lung—giving rise in the one case to scrofulous bronchitis, in the other to scrofulous pneumonia—two affections which may exist separately or combined, and either of which may prove fatal, with or without the development of tubercles in the lungs.

Before concluding, I wish to make a few observations on the use of decoction of sarsaparilla and nitric acid in certain cases of chronic cough. The utility of this combination has been long recognised in cachectic states of the system and affections of the skin, whether syphilitic or mercurial; and it has also proved very efficacious in various species of sore throat, chronic pains, and other textural derangements of a slow and tedious character. The marked effects which the decoction of sarsaparilla and nitric acid produces in these diseases of the general habit, skin, and mucous membrane of the throat, led me to infer that the same combination might be employed with advantage in cases of chronic cough, attended with redness and relaxation of the mucous membrane of the fauces, elongation of the uvula, and some degree of general debility.

I have observed that such cases are almost invariably accompanied by more or less derangement of the digestive organs and an irritable state of the general system; and from their analogy to other states of the constitution, in which nitric acid and sarsaparilla have proved extremely beneficial, I was induced to give this combination a trial; and I can now state that it has not disappointed my expectations. Decoction of sarsaparilla, given in doses of a pint daily, with a drachm or more of nitric acid, has proved a most useful

and valuable remedy in the treatment of cases of this description. It is scarcely necessary to observe that, in addition to the use of this remedy, change of air, moderate exercise and recreation, and a nutritious but not heating diet, are required. In some of these cases it will be also necessary to apply lotions of the nitrate of silver or sulphate of copper to the fauces and tonsils: where the uvula is greatly relaxed, it will require to be frequently touched by the nitrate of silver, or even to be shortened by an operation.

Guided by the same principles, I have frequently exhibited decoction of sarsaparilla with nitric acid in cases of persons of a reduced and relaxed habit, who are troubled with a slight but frequently recurring cough or hem, and the expectoration of a few bronchial sputa, occasionally mixed with blood, which appears to come, not from the lungs, but from the eroded mucous membrane at the top of the pharynx and larynx. In such cases I have observed, that the cough and expectoration took place chiefly in the morning after awaking, and in some had continued for weeks without any dyspnoea, pain in the chest, or fever. I may also remark, that the same combination may be often given with advantage to patients whose mouths have been recently made sore by mercury administered for the cure of bronchitis or pneumonia, and will occasionally be found useful in removing the still lingering remnant of pulmonary disease, at a time when mercury could not be pushed farther with safety.

LECTURE XLI.

PNEUMONIA.—PLEURO-PNEUMONIA.—ABSCESS OF THE LUNG.

As I am about to offer you some clinical observations on pneumonia, it may be necessary to make a few remarks on some points connected with the symptoms of the disease. And, first, with respect to the expectoration. With the characters of true pneumonic sputa I suppose you are sufficiently acquainted; you had many opportunities of examining the expectoration of a patient who died lately of gangrene of the lung, and to whom I shall again refer: at the time he was labouring under acute pneumonia, and while hepatization was still going on.

Dr. Stokes does not consider the character of the sputa of much value in pneumonia. He says, “Although the sanguinolent and viscid character of the expectorated mucus is observed in many cases of pneumonia, yet it is anything but constant. In fact, pneumonia may occur with all varieties of expectoration, from a scanty and colourless mucus, to the most different characters of secretion. It often occurs without any characteristic expectoration, and may thus pass even to its advanced stages. Generally speaking, it may be said that the *crachats rouilles* of the French are found in the more active cases of pneumonia, which occur in robust habits; but I am convinced that in a large proportion of the hospital patients, in whom the disease occurs in feeble constitutions, in the child, or as a complication or sequel to fever, the appearance of the sputa has little value.”—*Treatise on Diseases of the Chest*, page 320.

But I wish to observe—and I beg you will impress this on your minds—that *there may be cases of extensive pneumonia without any expectoration from the commencement of the disease to the period of complete resolution.* A case occurred in this hospital, of a young woman named Mary Nowlan, who had half one lung and the lower third of the other hepatized during a severe attack of pneumonia, and yet it was not accompanied at its commencement by expectoration; there was no expectoration during its continuance, and resolution went on, and the lung was restored to its healthy condition without any expectoration. She remained in the hospital for two months, the lung being extensively engaged; and during this time she was carefully watched, but we never could discover any thing like sputa from the beginning to the end of the disease. We have lately had under our observation a case of pneumonia after measles, in which a similar absence of the expectoration was observed. This is a very singular but instructive case.

Another fact with regard to expectoration. A man may get an attack of pneumonia, and, in consequence of the rush of blood which accompanies the first access of inflammatory action in the lung, may have at the beginning some bloody expectoration, but after a day or two this subsides, and though the lung is considerably affected, the patient may not have any expectoration whatever throughout the whole course of the disease up to the period of total resolution. I have seen this occurrence most distinctly marked in a

case which I attended with Sir Henry Marsh. A gentleman, who had got an attack of acute pneumonia, had bloody expectoration for the first and second day, but on the third, when I saw him, it had ceased, and all expectoration continued absent for five weeks, at the end of which he completely recovered. He was an intelligent and scientific man—knew well what was the matter with him, and entertained the old notion that all inflammatory affections of the lungs resolve themselves by expectoration. Hence he looked day and night for its occurrence with considerable anxiety, but not the least sign of sputa appeared. In this case the hepatization, which was very extensive, became completely resolved in the course of five weeks, and yet it is a singular fact that there was no expectoration whatever, from the commencement of resolution to its termination.

Hence you may perceive, that in pneumonia the sputa may be absent from the beginning to the end of the disease ; and that although the hepatization may be very extensive, still resolution will occur without the slightest expectoration. Again, inflammation may attack a considerable portion of the lung, and the patient may have bloody expectoration for the first two or three days, or during the stage of congestion ; this may cease altogether, and the patient have no sign of sputa of any description up to the period of complete resolution. These are, no doubt, rare exceptions to the general law which regulates the course of pneumonic inflammation, in which we have sputa of one kind or other at every period of the disease ; but they possess a considerable degree of interest, and it is of some importance to be acquainted with them.

There is another observation which I wish to make here. The lung becomes attacked by inflammation, this goes on to hepatization, that is, a certain portion of the pulmonary tissue which had been before pervious, becomes impervious ; instead of being a soft, elastic, crepitating, sponge-like body, it becomes solid, inelastic, and very like that organ from which this condition derives its name, the liver. One of the most curious things, the knowledge of which we have arrived at by the discovery of the stethoscope, is that not only small, but even very extensive portions of the lung may become thus solidified and altered in their texture, so that a return to the normal condition would seem almost impossible, and yet we know that a person may have nearly two-thirds of one lung reduced to this state of solidification, and still become afterwards as healthy as ever.

Now, if you read Laennec's admirable remarks on pneumonia, and other treatises on the same subject, you will find that the circumstances which indicate the resolution of pneumonia, are sputa of a certain character, and the reappearance of crepitus. I need not repeat here what I suppose you are all aware of, that crepitus commences before hepatization, ceases on its appearance, and returns again when resolution takes place. The latter kind is what has been termed by Laennec *crepitus redux*. The crepitus of resolution differs, however, from that heard in the earlier stages, in these particulars, viz. its bubbles are much larger and moister, and it can be heard during the whole of the inspiration, and in a diminished degree during expiration. But in the other case the first part of the inspiration is pure, and the rale only appears at the termination of the effort, and is of an exceedingly fine and dry character. Nature accomplishes the resolution of pneumonia not only by absorption of those particles which the process of morbid action has deposited in the tissue of the lung, but by secretion into the air cells and minute bronchial tubes, and it is the presence of this secretion which gives rise to the crepitus redux. Now, the observations which I have made with respect to the total absence of expectoration in some cases of pneumonia, apply here also ; for where all sputa

are absent, where there is no expectoration from the beginning to the end of the disease, you can have no crepitus redux.

The fact which I wish to impress on your attention is that in some cases of pneumonia, expectoration may be completely absent; here the crepitus redux is never heard. Thus, in the case of Mary Nowlan, resolution went on to the re-establishment of the healthy and normal condition of the lung, without the slightest crepitus being heard. It is not necessary for the resolution of hepatization that there should be increased excretion into the bronchial tubes during the time nature is employed in absorbing the matter deposited in the lung. In the ordinary way it is removed partly by absorption and partly by excretion into the bronchial tubes. Sometimes, however, interstitial absorption alone seems to be sufficient for this purpose, and the cases I have mentioned prove that it is in the power of nature to remove the morbid product in this way, without calling in the aid of the bronchial tubes. I may, however, remark that such cases are rare, and that resolution proceeds much more slowly than where free expectoration is present.

Let me now direct your attention to another topic. You have seen that a principal feature in the character of the present pneumonia is its complication with pleuritis; we have had several cases of inflammation of the lungs, combined with inflammation of their investing membranes, but I do not recollect that we have had a single case of pure pleuritis, or pure pneumonia. In the patient who lies at present in the chronic ward, labouring under pleuro-pneumonia, the inflammation occupied the superior part of the right lung in the first instance, and this is rather remarkable, as pneumonia generally commences in the lower part of the lung. Here, however, the pneumonia and pleuritis were located above, each being in point of extent nearly of the same dimensions, the portion of inflamed lung corresponding in its area to the portion of pleura engaged in the disease. Soon after his admission we found that the inflammation was making further progress, but its spreading was attended with this remarkable peculiarity, that while the pleuritic inflammation in the superior part of the right side of the chest became limited, and ceased to extend itself, the pneumonic inflammation commenced travelling downwards and backwards, so that after two or three days we had pleuro-pneumonia in the upper part of the lung, and further down, in the lower and back part of the lung it was merely pneumonia unaccompanied by pleuritis.

This is an occurrence which I have frequently witnessed, that when pleuritis and pneumonia co-exist, the latter will spread, often in spite of all our efforts, while the former remains stationary. I wish to impress this fact on your minds that pleuritis never exhibits such a tendency to extend itself gradually, day after day, as pneumonia; if the pleura becomes inflamed, the extent to which it is likely to be engaged will be determined in twenty-four hours; whereas, in cases of pneumonia, the disease, though limited at the commencement to one or two small insulated spots, will frequently begin to extend in every direction from these points, until in the course of a few days it involves a large portion of the lung. In other cases, many days are required before the spreading of pneumonia ceases.

This case is of considerable interest to the stethoscopic student, as exhibiting in a very satisfactory manner all the physical signs of pneumonia, as well in its pure state as where it is complicated with pleuritis. It is unnecessary for me to enter into any detail of the symptoms, or of the physical signs, but I invite you to study them as well worthy your attention.

A patient has recently died, who came into hospital labouring under a

disease which generally proves fatal, namely, double pleura-pneumonia. He had violent pleuritis and pneumonia in both sides of the chest, under these peculiar circumstances: that in the left side the pneumonia was situated above and anteriorly, in the right side below and posteriorly; so that the lungs were affected nearly at the opposite ends of their transverse diameters. On his admission, he appeared extremely low and weak, and it was obvious that the case must terminate fatally. His respiration was extremely quick and laboured; he had great oppression about the chest, constant anxiety, incessant harassing cough, quick, weak, pulse, and a countenance expressive of intense suffering. On examining the chest with the stethoscope, we found that both lungs were extensively solidified; and this, combined with his age, and the manifest sinking of the powers of life, prevented us from indulging in any hope of being able to arrest, much less to remove, his complaint. He was a poor creature, moving in the very lowest class of life, ill fed, without sufficient clothing, most wretchedly lodged, and constantly exposed to cold and hardship. He had been employed in breaking stones on a road at fourpence per day, and out of this miserable pittance endeavoured to maintain a family. From repeated exposure to inclement weather, he got a violent attack of pleura-pneumonia, which, being neglected at the commencement, assumed an intractable character, and when he came into hospital, the disease had been of several weeks' standing, his system reduced to the lowest state, and no sign whatever of reaction.

In estimating the danger of a patient labouring under pneumonia, it is not so much in proportion to the extent of lung engaged, as to the quickness of respiration, and the presence or absence of symptoms of asphyxia. You will see one man in pneumonia, having nearly the whole right or left lung inflamed and solidified, breathing easily with the other lung, and apparently suffering but little inconvenience; while you will find others, with a smaller amount of disease, exhibiting symptoms of distress bordering on asphyxia.

I attended a young gentleman eighteen months ago, who had complete carnification of the left lung, and pleuritic effusion on the same side, pushing the heart so far out of its place, that it could be felt pulsating under the right mamma. His illness lasted for nearly four months; yet the fluid was afterwards completely absorbed, the lung gradually assumed its natural condition, and he recovered perfectly. About six months after, I was again called to see him, and found that after exposure to cold he had got a violent attack of pneumonia in the right lung, which had run on to hepatization, and on examining him by the stethoscope and percussion, I found that almost the whole of the lung was solidified. In this case, there never was any thing like an approach to asphyxia; indeed, the distress of breathing was extremely slight, and he recovered completely in two months.

This was rather a singular case; the patient one year getting violent pleuritis, followed by extensive effusion, forcibly compressing the lung so as to render it quite useless, and pushing the heart out of its place; and the next year getting an attack of pneumonia in the other lung, ending in solidification of nearly the whole organ, and yet recovering completely from both. I need not say that there could have been no scrofulous taint in this gentleman's constitution, for if there had, the chances were that he would have sunk under either of these attacks. He lives at Crumlin; and in both instances his attending physician was Dr. Adams, of Stephen's-green.

In such a case as this, the utility of the stethoscope was obvious; by its means we not only learned the nature and extent of the disease we had to

combat, but also the exact situation where topical applications, such as leeches, blisters, setons, &c., should be applied with greatest advantage. I had lately an opportunity of witnessing an extremely interesting case of perfectly latent pleurisy. It was seen in the first instance by my former pupil, Mr. B. Guinness. A fine young gentleman, catching cold, contracted some slight fever apparently catarrhal, which altogether subsided in five or six days, but he remained very weak. I saw him on the tenth day; a very slight cough remained, his breathing was regular, and he felt no want of breath; he had no pain in the side from the commencement; he was weak and rather sleepless, otherwise he could specify no complaint. I do not know what induced me to percuss his chest—perhaps it was the force of habit; be this as it may, percussion led me to the discovery of extensive pleuritic effusion on the right side. He recovered perfectly under the use of proper medicines.

In a case which I attended lately with Sir Henry Marsh, I had an opportunity of observing that peculiar throbbing of the chest which so often accompanies pneumonia, and which Laennec considered as caused by the impulse of the heart, transmitted through the hepatized lung. This explanation of the phenomena in question does not appear to me altogether satisfactory. In the first place, the throbbing is too strong to be derived from this source. Thus, in the case of the Rev. Mr. —, we found that the pulsation was as strong at the right mamma, and even far above it, as it was directly over the heart itself. If the pulsation depended on the stroke of the heart propagated through a solid body, its strength at any other point would be weakened in proportion to the size of that body. It is for this reason that a man bearing a large anvil on his chest scarcely feels the blow when the anvil is struck by a sledge hammer. Now, in the instance before us, the pulsation extended all over the front of the right lung, a great distance in a man with so large a chest, and in most parts was as strong as the pulsation of the heart itself, and, therefore, the latter could not cause the former by mere propagation through the medium of the hepatized lung.

In the second place, it is not easy to conceive how the impulse of the heart, propagated through the lung, could impart to it not merely motion, but such a motion as every where causes a pulsation against the side, that beats distinctly against the end of the stethoscope, lifting up at each stroke the hand or ear of the observer, and imparting distinctly the sensation, that the throbbing is produced by something within, not moving laterally, as the *solidified right lung* would be by the stroke of the heart, but tending with considerable force outwards in every direction, like the pulsation of a sub-jacent aneurism. In truth, the throbbing adverted to simulated most exactly aneurismal pulsation in every respect, except in being so widely diffused and so nearly equal in force over the whole space it occupied.

By what then was it produced? To answer this question we must enumerate the physical changes produced by inflammation in the lung. The pulmonary tissue was solid, for neither bronchial respiration nor bronchophony existed, but it was gorged with blood, and instead of its usual light and spongy texture derived from a vast number of cells filled with air, exhibited no doubt that injection and obstruction of all its parts, with a fluid more or less sanguineous, which Bayle and Laennec have termed *engorgement*. While in this soft, engorged, and as it were, semifluid state, it is easy to conceive why the lung, connected with the heart by such vast vessels, should pulsate with a strength almost equal to that of aneurism. The brain pulsates notably at each stroke of the heart, and cerebiform and fungoid tumours, on the surface

of the limbs and body, have, for this very reason, occasionally a pulsation so strong and distinct, as at times to have deceived the surgeon into the belief of their being aneurismal.

When the lung is solidified, in consequence of the inflammation proceeding still further, and causing hepatization, then each stroke of the heart will be felt and heard over a great extent of surface. This happens, likewise, in cases of tubercular solidification, and has elicited some excellent observations from the late Dr. Townsend; but in neither case would the observer be ever inclined to compare the motion imparted to the parietes of the chest to that caused by the stroke of a subjacent aneurism. *Whenever this pulsation or throbbing of the inflamed lung is observed, it indicates a disease of considerable danger and violence*, for the action of the heart is in such cases greatly excited, and is in general extremely difficult to reduce to its natural standard. In some cases of this nature, the action of the heart is sufficient to induce pulsation and throbbing, not merely in the inflamed lung, with which it is directly connected by means of enlarged vessels, but also in the superficial veins of the extremities, an occurrence proving the correctness of the explanation of pulmonary throbbing which I have given. Thus, in the case of a gentleman labouring under pneumonia, attended by Mr. M. Collis and myself, the action of the heart was very powerful, and a *distinct pulsation*, corresponding to each stroke of the left ventricle, was perceptible in all the veins of the back of the head. Sir Philip Crampton witnessed this curious phenomenon.

Another phenomenon, observed in the progress of the foregoing case, strongly attracted the attention of Sir Henry Marsh and myself,—bruit de soufflet, of the most distinct and loudest sort, audible not merely in the region of the heart, but over the entire front of the chest. *This bruit did not exist in the subclavian or carotid arteries*; Sir Henry Marsh, who watched the case with the utmost care, is quite certain that no such sound accompanied the action of the heart in the commencement of the pneumonia; it was not until considerable dulness and disappearance of respiratory murmur over the lower portion of the lung had taken place, that the bruit de soufflet began, increasing in intensity as the inflammation of the right lung spread upwards. This new symptom caused us much uneasiness, and naturally induced the fear that the inflammatory action was not confined to the right lung, but had extended to the heart and great vessels, an occurrence that would have rendered the case almost hopeless. Our fears made us attend to this symptom with the greatest anxiety. For several days it continued without the slightest abatement, but at the period when the stethoscope and general symptoms indicated a notable diminution of the inflammation, then the bruit de soufflet began to diminish in loudness and intensity, and in the course of four days altogether disappeared.

Leaving to others the explanation of so remarkable a symptom, I shall at present merely observe that the occurrence of bruit de soufflet in the heart, in cases of pneumonia, must be rare, for it is not even mentioned by Laennec, one of whose observations indeed seems to imply that such an occurrence was unknown to him, for he says, in speaking of bruit de soufflet in the heart, "on the other hand, we never meet with this sound in direct febrile excitement, unless the individual is at the same time very nervous." Now, in the case before us the bruit was evidently connected, not with the state of the nervous system, but with pneumonic inflammation; for exactly in proportion as that increased or diminished, the intensity of the bruit varied.

I have to make one observation on bleeding in pneumonia. This disease is at present somewhat like an epidemic, for, during the last month, we have

had every week four or five cases of genuine pneumonic inflammation. One of these patients has died: he had hepatization of the left lung from top to bottom. We were aware from the beginning that his case was hopeless. In the rest we have been uniformly successful; some are at present recovering, and others have been dismissed cured. We have used the lancet in treating them; but not one of our patients has been bled largely. In general two venesections, each of twelve ounces, were found sufficient; sometimes the sum of the bleedings amounted to thirty-six ounces; and very rarely have I been ever obliged, in the treatment of pneumonia, to take more than fifty ounces during the whole course of the disease. Bear this in mind, for you will hear many persons maintain that much more copious venesection is necessary. You will hear them boast of having drawn forty, fifty, or even sixty ounces of blood in one or two bleedings. This heroic use of the lancet is generally uncalled for in pneumonia, and argues a want of tact in the practitioner; for were he acquainted with the mode of employing other remedies in this disease, he would not trust solely to venesection. Whatever inconsiderate persons may think, it is of the greatest importance to cure disease with the least possible loss of blood; for you may rely on it, that every ounce of healthy blood you take away is shortly replaced by two ounces very far inferior in quality. Persons much debilitated by disease are in a dangerous state. Protracted convalescence is always unsafe; therefore it is clear that it should be a paramount object of the physician to cure his patients with as little loss of blood as possible.

Recollect, therefore, that you can cure a pneumonic attack by moderate bleeding, and without injuriously weakening the strength of your patient. Far be it from me to decry the use of the lancet, a practice which has the unquestionable sanction of time and experience; but I may be permitted to express my doubts whether pneumonia be a disease which demands the heroic employment of the lancet. I think that a man labouring under severe bronchitis requires nearly twice the sanguineous depletion necessary to subdue a case of genuine pneumonia. You perceived that we have adopted different plans of treatment in pulmonary disease, according to the various circumstances of our patients. We frequently find that inflammation of the lungs may be cut short completely. In the same way bronchitis may be arrested in twenty-four hours. If you happen to visit a case at its very commencement, you have an opportunity of staying its progress; but if this boundary be passed, all you can do is to conduct it safely through its successive phases. A person is admitted into hospital who has been eight days, or perhaps longer, ill; one part of his lung is in a state of active pneumonia, and, in another part, hepatization has taken place. Here you cannot overcome the malady in a day. In this stage you may be obliged to bleed, but you can only bleed in small quantity: you are to have recourse to tartar emetic. Of this I shall say nothing; you all know the treatment, and the rules by which it is to be guided. You are aware that if there be inflammation of the stomach and bowels, you must abstain from the use of this remedy, lest you increase the intestinal symptoms and produce a dangerous effect on these organs. Here you must give calomel. If I were asked, too, what I would prescribe in such cases, where hepatitis was combined with the pulmonary affection, I would say, calomel. Under such circumstances I prefer it to tartar emetic—even though the stomach might be capable of bearing the tartarized antimony; it is a valuable remedy, and its power of arresting inflammation is known and acknowledged. The longer pneumonia has lasted, the less likely we are to derive benefit from tartar emetic, and consequently, in most of the cases

which are accompanied by decided hepatization, you observe that we prefer moderate but repeated doses of calomel, until the mouth is distinctly but not severely affected.

The formation of abscess is looked upon very generally as a rather uncommon termination of inflammation of the lungs; and whenever it does occur, it is regarded as a very unfavourable result. The following remarkable cases, however, afford abundant proof that patients may recover, contrary to the usual interpretation of the most significant and decisive stethoscopic symptoms, and therefore deserve your attention in order to warn you from relying too exclusively upon physical phenomena, and too hastily concluding that pulmonary lesions, however extensive, thus indicated, must necessarily prove fatal. These cases, too, show that vast abscesses may be formed in the lungs, and yet the patient recover; and likewise, that real circumscribed abscess occurs more frequently in the pulmonary tissue than Laennec allowed, or his followers seem to believe. It is true, indeed, that where suppuration takes place in the lung, nature effects it in a manner either calculated to afford the readiest exit for the matter so formed, or best suited to promote its absorption.

This object, from the extent of the parenchymatous structure of these organs, and its relation to the air-cells and minute bronchial tubes, is most easily affected, by so disposing of the purulent fluid resulting from inflammation, that it can, on the one hand, be with facility eliminated through the bronchial tubes, or, on the other, absorbed in the texture of the lung itself. In other organs and other parts a similar facility for mechanical elimination does not exist, and consequently the easiest step which nature can take is, to collect the puriform fluid, within the parietes of a circumscribed abscess, which may work its way outwards for the purpose of discharge. From this view it appears that, in other parts, circumscribed abscess is the ordinary means of evacuation provided by nature, and diffuse suppuration the exception; while in the lungs the reverse obtains, diffuse suppuration being the ordinary rule, and circumscribed abscess the exception. The rationale here exposed has been well explained by Dr. Stokes in his admirable treatise on diseases of the lungs, but, at the time he wrote, neither he nor I was aware that large abscesses occur so frequently in the lungs, or are so often recovered from, as subsequent observation has shown to occur.

CASE I.—In the year 1837, I was called to visit a boy at Rathmines, who presented the following symptoms: he had for many weeks been affected with cough, dyspnoea, and bloody expectoration, attended with fever, emaciation, and colliquative sweats; and when I saw him his pulse was extremely quick, his respiration hurried and difficult, while his whole appearance expressed danger of almost immediate dissolution.

The right side of his chest, but more particularly the superior part below the clavicle, was dull on percussion, and every time he coughed, matter could be heard gurgling in a vast cavity in the upper part of the lung; the gargouillement was so plain as not to require the application of the stethoscope, and indeed it was almost impossible for even the most zealous cultivator of science to examine the physical phenomena very closely, for every time he coughed he threw up large quantities of purulent matter, mixed with blood, of a stench so insufferable that my stomach was nauseated, and I could not remain more than a few minutes in his room, even the most distant parts of which were pervaded by this abominable fetor. I at once pronounced the case hopeless, and advised merely palliative treatment. In a few months afterwards I was surprised to see the same boy apparently recovered, assisting in carrying on his father's business, that of a tavern-keeper. He has since

grown up and become a tolerably strong young man, healthy in every respect, except a certain degree of shortness of breath, which he feels when forced to make any considerable exertion. A manifest flattening is still evident beneath the right clavicle.

CASE II.—In the summer of 1839, Sir Philip Crampton brought me to the Shelbourne Hotel, to see a boy about twelve years of age, who had been at school in France, and had caught a cold in the preceding spring, under the effects of which he had ever since laboured. The disease had been but little attended to, and no appropriate treatment employed until emaciation had considerably advanced, and his constitution was evidently sinking under the inroad of the malady. His father was then written to, and he proceeded in haste to the school, where he found that an eminent physician had pronounced the boy's case hopeless, and had declared that he was in the last stage of phthisis. He was brought to Ireland by short stages, and though his removal was accomplished with all due care and circumspection, yet his parent was more than once in a state of well-founded apprehension that he would expire on the road. The disease in this case had been *so long in forming, had advanced so steadily*, and had attained to such a degree of intensity, that little or no hope remained of his recovery. The physical phenomena and the constitutional affection were much the same as those detailed in the preceding case, with the exception that the expectorated pus was neither so abundant nor so fetid. In both this case and the preceding it is to be remarked that only one lung was affected. His parents were anxious to remove him to the country, and Sir Philip Crampton and I felt much hesitation in sanctioning this step, as the danger of his immediate dissolution was so imminent. His friends, aware of his danger, nevertheless executed their intention; and about five months afterwards I was astonished to learn that the boy had perfectly recovered, and was then engaged in frequently enjoying the diversion of hunting in the County of Tipperary.

In both these young persons, the history of the disease and its unexpected termination prove that they were affected with chronic pneumonia, ending in the formation of vast abscesses in the upper portion of the lung, which brought both patients into a state of the greatest jeopardy, but finally yielded to the curative powers of nature.

I do not see how, in either, a physician was to distinguish them from tubercular abscess. Had the disease in either been more acute, the diagnosis might have been possible; but in both its progress was at first insidious, occupying many months previous to the formation of the cavities, and accompanied by gradually increasing constitutional symptoms and hectic fever. The mere freedom of one lung from disease does not constitute a certain means of diagnosis, for the same not unfrequently obtains in true tubercular phthisis. In such cases it is probable that the microscopical examination of the expectorated fluid would have thrown important light on the subject, and have revealed the true nature of the disease; but it is only lately that investigation has been directed to this promising field of inquiry. *

CASE III.—Early in the spring of 1841, Dr. Brereton brought me to see, at Sandford, a young boy about fourteen or fifteen years of age, who a fortnight before had been attacked with symptoms of pleura-pneumonia, intense pain in the side, and cough of a very harassing character; he had also expectorated considerable quantities of the characteristic sputa, tinged of a prune juice colour. The constitutional symptoms had all along been very severe, and, together with the local inflammation, had not yielded to very

active and judicious treatment. For about ten days after my first visit matters went on from bad to worse, and at the end of that time his pulse was about 140; dyspnoea excessive; uneasiness, jactitation, and restlessness; constantly urgent cough both night and day, so that his case appeared utterly hopeless, and his death was hourly expected. The pneumonia occupied nearly the whole of the right lung, and rendered that side almost everywhere dull; and during the first periods of the disease crepitus had been extensively present. While matters thus threatened a speedy and unfavourable termination, he was seized at night with intense difficulty of breathing, anxiety, and pain in his side, and seemed to be moribund. With a sudden effort, however, he succeeded in expectorating a very large quantity of purulent matter, and immediately obtained comparative relief. A similar struggle took place on the following night, and with a similar result, and when I saw him the next morning, I found him in some respects manifestly relieved, but still labouring under great debility, considerable difficulty of breathing, and fever.

On examining the right side of the chest, the whole anterior portion, from immediately below the clavicle downwards, as far as the bottom of lung was found to be morbidly resonant on percussion—a change of a most striking nature, for these parts had been before quite dull. This side of the lung was now evidently dilated, and the stethoscope detected a loud and well-marked metallic tinkling whenever he coughed or spoke. The detection of this phenomenon rendered it certain that a vast abscess existed in the lung, communicating certainly on the one hand with the bronchial tubes, and not improbably on the other with the pleural cavity—a view of the subject which, in my mind, rendered the case hopeless, and I pronounced it to be so. For a fortnight or longer he had occasioned returns of sudden purulent expectoration, each time, however, less in quantity, and followed by more marked relief of the constitutional symptoms; and about six weeks from the occurrence of the first expectoration of matter, his convalescence had far advanced, and he is now strong and healthy.

The following cases occurred in the practice of Dr. Stokes:—

CASE IV.—MR. H., a gentleman aged about twenty-two, was attacked with pain in the side, cough, and fever, and in a short time with very copious purulent expectoration. Soon after this the signs of extensive abscess made their appearance in the antero-superior, lateral, and posterior parts of the lung. The patient was then considered to labour under tubercular caverns to a great extent.

Shortly after, I saw him, when he presented the following symptoms: the whole antero-superior, lateral, and posterior upper part of the left lung sounded extremely dull; perfectly distinct cavernous breathing with large gurgling and pectoriloquy were heard from the second rib downwards to the mamma, and the same phenomena were audible along the fold of the pectoral muscle, from the axilla to the seventh rib. The expectoration was copious, muco-puriform, but not fetid, and the pulse full, regular, and under 90.

The treatment adopted was palliative; the pulse soon became natural: all hectic fever ceased; the dulness of sound on percussion gradually diminished, and the patient in the course of some months was perfectly restored to health, all the signs of caverns having completely disappeared.

CASE V.—A child, aged twelve years, was attacked with measles, in the course of which severe pulmonary symptoms set in; the measles having subsided, the pulse continued quick, skin hot, and breathing hurried; in about ten days the patient commenced to expectorate a purulent matter of an offensive character. The fetor of expectoration continued to increase.

I saw the child the third week after the disappearance of measles. The expectoration was copious, of an ash-grey colour, and of a horrible fetor; in fact, the entire apartment was tainted by the smell; the left lung presented nothing abnormal, nor did the upper lobe of the right: but the whole region of the lower lobe gave a perfectly dull sound on percussion; loud, gurgling, cavernous respiration, almost metallic, with a painfully distinct pectoriloquism.

The patient was ordered a milk diet, tonic medicines, and country air, and recovered perfectly in the course of a few weeks.

CASE VI.—Mr. D., aged about twenty-five, high shouldered, and with a remarkable stoop, was attacked with cough in the autumn of 1839. His pulse became quick; he lost flesh rapidly, and presented the usual constitutional symptoms of phthisis in an early stage. Within a few weeks of the invasion of the disease, Mr. D. began to expectorate from half an ounce to an ounce daily of a sanious purulent matter, having the colour of urine, but not offensive. He soon came to town; the right clavicle was dull on percussion, the vascular murmur feeble as far as the third rib; above the clavicle most distinct gurgillement existed, and the same could be heard in the acromial region, particularly when he coughed.

Soon after this the pulse became quiet, and the expectoration, though still preserving the above character, diminished in quantity. The patient went to the Cove of Cork, where he remained for the greater part of the winter season. He returned in spring, having become very fat, and without the slightest symptom or physical sign of any pulmonary disease.

I could narrate several instances of pneumonic abscesses similar to those already mentioned, but they seem amply sufficient to prove that the disease is of much more frequent occurrence than is supposed, and is more frequently curable than the serious nature of the lesion would lead us to anticipate.

Some may think that the duration and previous history of the disease may serve to distinguish simple from tubercular abscess of the lungs; but a more accurate examination of facts will show that no reliance is to be placed upon either as a means of diagnosis, for, on the one hand, tubercular abscess sometimes forms in the course of a few weeks from the apparent commencement of phthisis; and, on the other, simple pulmonary abscess is often preceded by inflammation of many months duration, and the origin and progress of the symptoms are, as in Case II., quite identical with those of phthisis.

LECTURE XLII.

GANGRENE OF THE LUNG.—PLEURISY.—ENCEPHALOID CANCER OF THE LUNG.

IN continuation of the diseases, gentlemen, which we were last speaking of, let me call your attention to the state of the lungs of a patient who died yesterday in the fever ward, and to whose case I have frequently called your attention. They present some pathological phenomena of considerable interest, and I advise you to examine them carefully after lecture.

The patient, who was advanced in life and of a feeble constitution, had been ill for a week before his admission, with symptoms of dyspnoea, cough, and pain in the left side, which came on shortly after his recovery from an attack of fever. On examining him the morning after his admission, we found the inferior part of the lung dull on percussion, the dullness extending much higher up posteriorly than anteriorly. On applying the stethoscope, we observed that, over a space about the size of two palms, no sound, morbid or otherwise, could be heard; but above the line which bounded this space there were crepitating rales and bronchial respiration. We had, therefore, a two-fold affection of the lung, pleuritis, as indicated by the pain in the side, dullness on percussion, and absence of all sound over a certain portion of the chest; and pneumonia, as indicated by cough and expectoration of viscid sputa, tinged with blood, dullness of sound on percussion, bronchial respiration, and crepitating rales.

It is unnecessary for me to recapitulate all his symptoms, as I have, while visiting the wards, mentioned them in detail, and I shall merely state that our examination showed that this man, in the first place, was labouring under pleuritis, and that it was of that kind which is called dry pleurisy, and where there is no tendency to *considerable* effusion; and, in the next place, that he had pneumonia of the inferior lobe of the left lung, extending up into the middle lobe posteriorly. You recollect that, at the time of our examination, I marked on his skin with a pen the extent of the pleuritic inflammation as well as of the pneumonia, and you will find, by examining this lung, that my diagnosis was correct. You observe the pleura presenting, over its inferior part, laterally and posteriorly, an effusion of lymph, with a very small quantity of sero-purulent fluid; and here is the seat of the pneumonia, which occupied precisely the portion I pointed out, and no more.

With respect to treatment, it was antiphlogistic, pushed as far as the advanced stage of the disease, and the age and debility of the patient permitted. He was leeches and blistered, and this was immediately followed by the use of calomel and opium, and the application of mercurial ointment over the affected portion of the chest. This treatment appeared to check the disease and stop the progress of disorganization in the lung; at least, it certainly arrested the pleuritis. The pulse became more tranquil, and what encouraged us to entertain some slight hopes was, that the difficulty of

breathing subsided, and respiration became less frequent, although it was never reduced to any thing like the natural standard.

I have already told you, that in studying acute and chronic affections of the chest, the two chief symptoms to be attended to, are the number of respirations which occur in a minute, and the amount of dyspnœa complained of by the patient. Here, though the respiration sank from forty to thirty, still they were nearly double the natural frequency; and this, coupled with the age and debility of the patient, forbade us to hope for a cure. Though the pulse had become more tranquil, and the bloody expectoration had ceased, though dyspnœa was no longer complained of, and the frequency of respiration had become reduced, still the man's countenance exhibited strong marks of suffering and debility, and the stethoscope showed that the disease still continued, and that there was no tendency to resolution in the affected lung.

Here the stethoscope was of great value. A person ignorant of its use, observing the tranquil state of the pulse, the diminution in the frequency of respiration and cessation of dyspnœa, might be led to believe that the man was getting better, and to pronounce that the period of convalescence was near. But the stethoscope told us that the hepatization of the lung was not receding, and when we observed after a week, that it was still undiminished in extent, we were led to form an unfavourable prognosis. We knew that matters could not remain long in this state; we knew that the disorganised lung acted as an irritant tending to keep up disease, and that the man was every moment liable to a new attack of inflammation.

In the meantime the patient caught a fresh cold, from being exposed to the thorough air of our too well ventilated wards. This fell on his larynx, producing hoarseness, stridulous breathing, and copious expectoration. When an old person reduced by some previous disease, catches cold, and gets, in consequence, a sudden and remarkable hoarseness, so that he can only speak in whispers; when, in addition to this, he has cough, stridulous breathing, and copious muco-purulent expectoration, you may be sure that the case is a bad one, and the patient in most imminent danger.

Inflammation of the larynx in children is, you all know a violent disease, it terminates in an effusion of lymph which, if not prevented, or remedied, by the most prompt and decided measures, too often produces fatal obstruction to the entrance of air, and death from asphyxia. In the adult, laryngitis does not, except in a very few instances, cause an effusion of lymph; still it is a severe disease, and well calculated to excite alarm. *In the aged it is accompanied by considerable fever, and what you would suppose likely to give relief, copious expectoration, evidently derived from the larynx itself;—and yet I do not recollect that I have ever seen an attack of this kind that did not terminate fatally.* I have recently visited a case of this description, which occurred in the person of an eminent country practitioner, who had just come to Dublin. He had got an attack of cold followed by hoarseness, which went on for two or three days without being attended to, until one evening he suddenly became alarmingly ill, and was obliged to send for his friend, Dr. Evanson, who prescribed and called on me the next day. I found him labouring under hoarse breathing, constant laryngeal cough, prostration of strength, and enormous muco-purulent expectoration. His pulse was very rapid, he complained much of oppression of the chest, and died the following night, more with symptoms of exhaustion than of asphyxia.

The symptoms of laryngitis, which arose thus suddenly in our patient, were quickly succeeded by others. On Saturday morning we found him much

worse, his countenance was sunk and livid, and his breath had become exceedingly fetid. His expectoration also exhibited a very remarkable change; it was greenish, ichorous, and had a most intolerable fetor. He now began to manifest symptoms of awful prostration, his distress of respiration became intense, his eyes fixed, his extremities cold, and he expired in about forty hours from the commencement of the attack.

Here, gentlemen, a man after fever gets an attack of pleuro-pneumonia; this is relieved to a certain extent by treatment, but the hepatization remains unresolved. At the end of three weeks he gets an attack of laryngitis; in addition to this, gangrene seizes on the diseased lung, and he sinks with great rapidity. Where gangrene attacks the limbs it may creep on slowly, and life may be prolonged for a considerable time; but when it fixes on internal organs its course is rapid, and it generally proves fatal in a few days. In the lung, unless the patient's constitution is unimpaired and the disease limited it will terminate quickly in death, and you have seen that in this case it only lasted from Saturday until Monday morning, that is to say about forty hours. After the acute stage of pneumonia had passed away, as denoted by the absence of the fever and bloody sputa, and the diminution of dyspnoea and frequency of respiration, the case assumes a chronic character, which continues for nearly a fortnight, and then a new order of symptoms appears, manifested by fetid breath and expectoration, sudden prostration of strength, hippocratic face, and cold extremities. Those who have watched this case must have been struck with these three remarkable stages: the first stage of inflammation, the succeeding one of chronic disease, and the termination in gangrene. It is not usual to find gangrene of the lung supervening on inflammation which has arrived at the chronic stage; it is most commonly the result of acute inflammation of intense character, and comes on at a very early period of the disease.

How are we to account for this sudden supervention of gangrene? There was nothing in the nature of the pneumonic inflammation to dispose it to terminate in this way. It had lasted for three weeks, and had arrived at a stage in which inflammation very rarely assumes the gangrenous character. To what then are we to attribute it? Partly to the debility of the man's constitution, and partly to an erysipelatous tendency in the air which was at the time prevalent. Except there was something to dispose the lungs to gangrenous disease, as an enfeebled habit and vitiated quality of atmosphere, we could not, under the existing circumstances, have expected such a termination. That this view of the subject is correct is shown by the simultaneous occurrence of gangrene in another part, which had not been previously diseased, or subject to inflammation, except shortly before the man's death,—I allude to the larynx. If you examine the larynx, you will find the mucous membrane at the posterior surface, and where it invests the chordæ vocales, destroyed by gangrenous sloughing.

You perceive, then, we had gangrene in the larynx and lung simultaneously. The gangrene of the lung was not therefore attributable to the occurrence of local inflammation having a tendency to gangrene, but dependent upon a constitutional affection produced by debility and a vitiated state of atmosphere. If this man had chanced to get a wound on any part of his body, I have no doubt but that it would have exhibited a gangrenous character, and, in the same way, if he happened to get inflammation of the bowels, it is most probable that this also would have ended in gangrene. I have frequently, in the advanced stage of fever, where the patient is much

reduced, and where signs of a morbid condition of the fluids are present, seen gangrene occur simultaneously in various parts of the body. What I wish to impress on you is, that though the inflammation of the lungs ended suddenly in gangrene, it was not in consequence of the inflammation having in itself any such tendency, but in consequence of a change produced in the man's constitution by atmospheric influence, and which was favoured by his advanced age and great debility.

The inference to be drawn from the sudden occurrence of gangrene in this case is, that it does not depend merely on violence or inflammation. At one time pathologists were inclined to believe that gangrene was invariably the result of excessive inflammation, or at least of inflammatory action disproportioned to the vitality of the parts attacked, and that it was possible to prevent any inflammation from ending in gangrene by prompt and active treatment. But there are certain states of the constitution which have a tendency to convert every form of inflammation into gangrene, and that wholly independent of the violence of the local inflammatory action. Thus, a person reduced by fever, small-pox, or malignant scarlatina becomes liable to be attacked with gangrene in various parts of the body from the slightest causes. In all parts which are exposed to any degree of pressure, you will, under such circumstances, have gangrenous sores formed; and even in parts where no degree of pressure has been exercised, sphacelus is not unfrequently produced, as we see in many cases of confluent small-pox, and in the mortification of the pudenda in female children, which sometimes occurs in bad measles. In such instances gangrene is not produced by symptoms of inflammatory action; and, in the present case, it is very probable that no inflammation of the lung, properly so called, preceded the gangrenous affection which terminated life.

A strong illustration of some of the remarks I have now made is furnished by the case of a man named William Deeg, aged 24, who died lately in the clinical ward of Sir Patrick Dun's hospital, on the 29th day after the first appearance of the eruption of confluent small pox. It is probable that his illness would have terminated favourably had not extensive gangrene of the sacrum taken place, to which the nurse did not direct my attention until it was of an alarming extent. It was first pointed out to me on the 18th day, at which time he laboured under hoarseness and bronchitic symptoms, unattended with any difficulty of respiration. In the course of a few days, however, dyspnoea came on, the wheezing in his chest increased and seemed to accelerate the period of death, which appeared to all those who had witnessed the progress of the case, to be the result of constitutional prostration induced by the external gangrene.

On dissection, two large and two smaller gangrenous sloughs were detected in the right lung. The gangrenous portions of the pulmonary tissue were insulated, being separated from the surrounding substance of the lung by a whitish membrane apparently formed of coagulated lymph: the question here occurs, whether these internal gangrenes were a consequence of the external one, or whether they were the result of the same fatal constitutional derangement that predisposed the external parts to become gangrenous from pressure? The former supposition seems the most probable; at the same time we must admit that gangrene often takes place in fever in external parts not liable to pressure, as, for instance, the soles of the feet. It is to be observed, however, that I never knew such parts to become gangrenous, *except after some other portion of the integument had mortified evidently in consequence of pressure.*

Andral's observations in his *Clinique Medicale*, on the connexion between

the state of external and internal parts in fever, and Cruveilhier's remarks on Gangrene of the Lung, are calculated to illustrate this subject still further, and tend to prove that the gangrenous sloughs in this case were not the result of previous inflammation, although nature had excited inflammation in the surrounding pulmonary tissue, in order to form cysts destined to insulate the gangrenous portions.

In connexion with this subject I may observe that I have seen three cases of intolerably fetid breath and sinking expectoration caused not by pulmonary gangrene, but bronchitis. In all, the sputa were copious, puriform, and evidently bronchitic, and it is very curious that in one man whose body was examined after death, no bad smell was perceptible from any part of the bronchial mucous membrane after it had been cleared of the mucus. The fetid gas was evidently, therefore, the result of a deranged vital secretion.

I may remark, incidentally, that in Deeg's case the pericardial sac was universally adherent to the heart, and yet the circulation was quite natural, an occurrence long ago observed by Morgagni, and which I have also witnessed in several other cases. Baillie, in his *Morbid Anatomy*, mentions a case in which the pericardium was altogether wanting, but which was probably nothing more than adherent pericardium. These facts are in themselves sufficient to refute that part of Barry's theory, which attaches so much importance to the peculiar mechanism of the pericardial attachment in promoting the circulation. It is rather discreditable to the medical profession, that Barry's theory should have excited so much admiration when first promulgated, as it was formed on principles irreconcilable with well-known hydrostatic laws; accordingly, ever since his work was published, I have never omitted any opportunity in my lectures to demonstrate the glaring errors into which he had fallen, and I am extremely glad that Dr. Arnott, in his *Treatise on Physics*, has employed the very arguments I had been in the habit of using, and has given Barry's theory its quietus.

Permit me now to direct your attention to the case of a man named T. Kelly, who lies in the upper fever ward, and has been under the care of Mr. Knott. He is at present labouring under an attack of pleuritis and pneumonia, each modifying the other—the pleuritis being here also of that nature which is, by contra-distinction, termed dry. A few particulars in this case demand our notice. In the first place, from looking at this man and examining his pulse, you would never suppose that he was labouring under a formidable disease. A careless observer, finding the pulse to be soft, regular, and only seventy-two in a minute, that respiration was tolerably free, and the skin cool, might here very easily overlook the true nature of the disease, and say this man has no fever, no inflammation of any internal organ. Yet a careful examination shows that the right lung and pleura are extensively engaged.

In the next place, we find that the pleuro-pneumonia has attacked the upper part of the lung instead of the lower. Pneumonia has a great tendency to attack the lower and posterior parts of the lung; indeed, so frequently do we meet it in this situation, that we look upon its occurrence in the upper part of the lung as a rare exception to a general rule. The third point connected with this case is, that though the patient is labouring under pleuritis and pneumonia, his blood does not exhibit the slightest symptom of being affected by this combination of violent inflammations. When drawn from the arm, it separated very imperfectly into crassamentum and serum, and there was no deposition of that buffy coat which has been so often noticed

by our ancestors as occurring in pleuritis, and hence termed *crusta pleuritica*. Here, from observing that there was no perfect formation of coagulum—no cupped or buffed appearance in the blood, and that the pulse was soft and regular—some persons would have argued that no inflammation was present; but how false and dangerous such a conclusion would be, any one may convince himself by making a careful stethoscopic examination.

The fourth point (which was first observed by Mr. Knott) is, that there is a considerable disproportion in the size of the sides of the chest; the right side measuring two inches and a-half more than the left. Now, there must be some cause for this; and as the man has pleuritis on this side, it would be natural to infer that there is a considerable effusion of fluid in the cavity of the pleura, and that the dilatation of the side is produced by empyema. There are some circumstances, however, in this case which forbid us to adopt such a conclusion. In the first place, this great increase of size in one side of the chest would indicate a very considerable effusion. By empyema, I do not mean the effusion of a quantity of lymph, which does not push back the lung more than a line, but an effusion of fluid—of various densities in different patients, and in large quantity, exercising very considerable pressure on the lung, and pushing it back towards its root.

There are two circumstances in this case which should be attended to; first, the man is a labourer, and in such persons the chest, measured across the pectoral muscles, is always found to be on the right side half an inch, and sometimes nearly an inch, larger than it is on the left. This is accounted for by the increased development of the muscles of the right side from constant use. In the next place we find that this man has not only pneumonia and pleuritis, but also a tendency to superficial inflammation occupying the parietes and integuments of the chest, as indicated by a feeling of pain and soreness in various regions of that side, but particularly at the lower part, where the sound is clear on percussion. Now, where the sound is clear on percussion, you are aware that no effusion of fluid exists. The fact is that, in addition to pleuritis and pneumonia, the man is labouring under pleurodynia, with a tendency to inflammation in the superficial parts of the chest. Under these circumstances, we should not be surprised to find some œdema of the parts; and here we have a second cause for the greater measurement of the right side of the chest.

These are the only points connected with this case to which I shall advert at present, except to mention that the treatment was obviously indicated to be antiphlogistic. You might perhaps think that in treating this man, it was a matter of indifference whether you had recourse to tartar emetic, either alone or in combination with nitrate of potash, or to calomel and opium; but you may lay it down as a rule now firmly established, that in cases like this, the mercurial plan answers much better than tartar emetic. After bleeding this man, then, we gave him mercury in such doses as to affect his system as rapidly as possible, and we followed up our general means of depletion by the application of leeches, *which in all inflammatory affections of the chest, are indicated in proportion to the pain and tenderness of the chest complained of by the patient.*—Indeed, something similar must guide us in judging how far we are likely to procure relief *in case of inflammation of any internal organ, by means of the application of leeches to the surface over the organ affected.* No good is ever obtained by their application, unless tenderness or soreness on pressure be distinctly observable, and the relief is always propor-

tioned to the diminution of this tenderness where it existed ; where it does not exist, the application of leeches only leads to loss of time, and we must employ other remedies in such cases.

There is another symptom in this case which might deceive you into the belief that empyema is present ; the motions of the right side of the chest are much more limited than those of the left. When you look at him stripped, you perceive an obvious difference between the respiratory motions on each side ; the motions of the unaffected side are free, and much more extensive than those of the diseased side. Now, generally speaking, this is a symptom commonly observed in empyema and a few other diseases. It may also exist where there is extensive hepatization of one lung, for, in proportion to the impossibility of air entering the diseased lung, will the motions of the corresponding side of the chest be diminished.

How are we to account for it in this man's case? The pneumonia is not extensive enough to cause it, and we have no evidence of the existence of any effusion into the pleural sac sufficient to explain it. The only way we can account for it is by recollecting that the man has pleurodynia ; and, as every attempt at dilating the chest gives him pain, he endeavours to curtail its motions on that side as much as he possibly can. This is a fact well worthy of notice. It exhibits to us a beautiful provision of nature, which enables a person, by an intense discharge of the respiratory function in one lung, to compensate himself for a lessened and imperfect performance of it, in that half of the chest where it is limited by pain, paralysis, or disorganisation.

The next case to which I wish to call your attention is that of James Maher, aged 22, who was admitted September 4th, in a low emaciated condition. He has a very troublesome cough, which occurs in paroxysms ; sputa scanty and bronchitic ; can lie easier on his back than on either side ; sweats after sleeping ; appetite bad ; bowels open ; pulse 100, small ; respirations hurried.

On looking at his naked chest, it is evident that the right half of the chest moves much less than the left. Percussion yields a dull sound at the lateral and posterior regions of the right side, in which latter region there is bronchial respiration without any rale ; in the former there is an absence of respiratory murmur ; there is bronchophony approaching to ægophony posteriorly ; whereas, laterally the voice is heard much less distinctly than in the natural state : the intercostal spaces are not distended ; the left side is normal.

He states that about the middle of August he fell, in a fit, upon his *left* side, and was bled four or five times largely for the apoplectic symptoms. In three days after, he got a severe stitch in his *right* side, for which he was twice copiously bled and blistered, and took some calomel and opium. The symptoms somewhat abated under this treatment, but the strength of the patient was much reduced.

September 6th.—The patient the same way ; there was no rale in the chest this morning when examined. The following treatment was prescribed :—

R. Pilulæ Hydrargyri, gr. iiij.

Extracti Opii aquosi, gr. $\frac{1}{3}$.

Fiat pilula ter in die sumenda.

Applicetur vesicatorium magnum parti dolenti.

7th.—Was attacked last night with great dyspnœa, cough very bad ; spitting up *frothy* serum with a pink tinge ; pulse 130, weak ; face livid ; hands cold ; great anxiety ; heart beating in a very laboured manner ; extensive

churning sound heard all over the chest. He was ordered carbonate of ammonia, but, shortly leaving him, raving set in and death soon followed.

The following were the morbid appearances :—The right pleural cavity contained about a quart of bloody serum : the posterior portion of the lung was covered with a pretty strong layer of lymph, which was about an eighth of an inch thick, and easily torn off ; the same was observed on the parietal pleura opposite to this. The surface of the compressed lung was, as is usual in such cases, wrinkled in many places, a mechanical effect produced by compression. These wrinkles require notice ; for in the case before us they imposed on more than one of the spectators, particularly at a part of the posterior surface of the lung, where one of the wrinkles formed, apparently, a deep indenture into the pulmonary substance, *which indenture containing sero-purulent matter, and being covered with a thick layer of lymph, bore a strong resemblance, on a cursory examination, to an abscess.* The bronchial tubes were found to be loaded with a frothy serous fluid, but there was no redness of the bronchial mucous membrane.

The first remark that is suggested by this case is the tendency which excessive depletion produces to the formation of inflammation. This poor man had been five times bled for a fit of apoplexy, and had been debilitated by various other depletory measures, and in three days afterwards, while lying exhausted and drained of blood, inflammation commences in the pleura, and goes on to a fatal termination, unchecked by remedies. Again, another circumstance requires to be noticed, which is, that the nature of the blood and its physical qualities must have been altered by the previous excessive depletion ; for we cannot otherwise account for the rather unusual circumstance of the colouring matter being secreted by the inflamed pleura, along with the lymph and serum of the blood : in a practical point of view, the sudden occurrence of a churning sound, denoting the presence of a serous fluid in the bronchial tubes, requires serious attention, for dissection proved that it was not the result of inflammation, but *was produced by a true serous flux into the bronchial tubes*, an event of the most sudden occurrence in the case before us, and which was accompanied by the remarkable rose-coloured serous sputa, which might easily have misled us into the belief that pneumonia existed. Here the colouring matter of the blood presented itself along with the serum, first in the pleural sac, and secondly in the bronchial tubes.

I shall next call your attention to a case of diaphragmatic pleurisy, in which many of the symptoms said to be characteristic of that disease were absent. A child, aged 8 years, was admitted into the Meath Hospital labouring under slight symptoms of a rheumatic character. She soon got relief, and was quite well, when one morning she got a fright from seeing a patient named Robinson, in a fit of delirium, threatening violence to her. This occurred about six o'clock, A.M., and at our visit at nine we found her sitting up in the bed ; her breathing exceedingly hurried, 76 : all the muscles of forced respiration acting energetically ; *alæ nasi* greatly dilated at each inspiration ; face pallid and puffed ; lips blue ; occasional dry hacking cough ; countenance anxious ; pulse 120, weak and small. She did not complain of pain in any particular part, but of a general uneasiness ; she had no tenderness of the chest. When we placed the hand over the cardiac region, a distinct fremitus was felt, but the sounds of the heart were quite distinct and unaccompanied by any abnormal sound. There was no dulness over the heart, or any part of the chest, except at the lower and back region of the

right lung, corresponding to which there was loss of the respiratory murmur. There was no evidence of any abdominal disease.

She was visited again in the evening by my clinical clerk, Mr. MacDonnell. She was then lying on her right side, but could not remain in the same position for more than a minute; her respirations were 80; her pulse not to be felt; feet cold; surface covered with clammy sweat; countenance extremely anxious; face presented a puffy appearance; occasionally biting her lips; short, dry, hacking cough; no expectoration; she did not complain of pain in the chest; the margins of the ribs were pressed upon without producing uneasiness; no pains shooting from the ensiform cartilage to the spine; pressure on the right side gave relief, and she requested this to be repeated. Though the fremitus still existed, yet the sounds of the heart were unaccompanied by any noise; and the action of that organ was strong, though, as before remarked, there was no pulse perceptible at the wrist; over the lower portion of the right side the dulness still continued, and corresponding to it was a distinct *frottement*; no ægophony. It was immediately over the seat of this *friction*-sound that pressure gave relief. At three o'clock next morning she died.

Post Mortem.—The chest was percussed: the left side sounded clear both before and behind, but the right, which during life was clear with the exception of the lower part, as before observed, now gave a completely dull sound over the greater part of its extent. On opening the thorax, about two quarts of a straw-coloured fluid escaped from the right pleural cavity. The pulmonic and parietal pleuræ were thickly covered with recently effused lymph, bands of which extended from one to the other: these bands were of recent formation and were easily broken down. The thoracic surface of the diaphragm was likewise thickly covered with lymph, and the lower portion of the right lung, which lay in apposition, was agglutinated to it by this material, but not to such a degree as to prevent it from being detached. The lower portion of this lung was carnified—the result, doubtless, of a previous pneumonic attack. On the left side there was no disease whatever of the lung, but the diaphragmatic pleura was coated with lymph in the same way as on the opposite side; the lower portion of the lung was likewise covered with this substance. The outer surface of the pericardium was not covered with lymph, but as it lay in contact with the inflamed membrane of the diaphragm, which muscle was acting with great energy, some of the phenomena, such as the fremitus over the cardiac region, very probably from this circumstance receive an explanation. The pericardium contained no fluid, and this membrane, as well as the heart and its valves, were in every respect quite healthy. No disease of any of the abdominal viscera, or inflammation of the peritoneal surface of the diaphragm.

The older writers asserted that *risus sardonius* and delirium were constant attendants on the affection under consideration; this we now know to be erroneous, but it is worthy of remark, that in this case not one of the symptoms laid down by moderns as depending on diaphragmatic pleurisy were present. Andral states that pain along the margin of the ribs, increased by pressure or respiration, pain in the hypochondria, and complete immobility of the diaphragm are indicative of this malady, and that the patient sits forward; any attempt to change his position producing intolerable pain. In such cases hiccup, nausea, and vomiting have been observed. In support of this view he cites four cases, yet we find in an example even better marked and less complicated than any he relates, that these symptoms were absent.

Dr. Stokes, in allusion to the above statement of Andral, says, "It is obvious that symptoms such as the above do not necessarily belong to inflammation of the diaphragmatic pleura, as they are seldom or never met with in ordinary empyema, when the whole pleura is equally engaged. On this subject additional facts are required."—A view in which I entirely concur.

I shall conclude this lecture with the description of a singular and uncommon disease of the lungs, which some of you have had an opportunity of witnessing. Rare diseases should not be looked upon as mere matters of curiosity, but should be attentively studied with the view of enabling us to recognise the true nature of similar cases when they again occur. Were the history of diseases at present reputed to be extremely uncommon, published by all those who meet with them, facts, now apparently single and insulated, would serve as *nuclei* round which future experience and observation might cluster together similar facts in groups sufficiently numerous to illustrate and explain each other. The diagnosis of encephaloid tumours of the lungs was, a few years ago, completely impossible; but I trust that ere long we may be enabled to arrive at some degree of certainty even in this difficult and obscure branch of thoracic pathology. The wish to promote so desirable an object has induced me to give you the details of the following case, chiefly valuable on account of the accuracy with which the symptoms were observed during life.

John Keating, aged thirty-six, of a muscular form, a printer, admitted on the 1st of May, 1833, into the Meath Hospital, which he had left in the beginning of April, having then been in it nearly two months. He dates his illness from the summer of 1832, at which time he became subject to occasional pains in the right side of his chest, increased by deep inspiration. Last November he was attacked with cough, dyspnoea, hoarseness, slight expectoration, at first mucous, afterwards a little tinged with blood, and constipation of bowels. In a short time he observed also some oedema of the face and neck, rather greater on the right side, and on rising in the morning. This illness he attributed to over-exertion, want of rest, and cold caught by handling damp paper. The symptoms were a little relieved by venesection and a cough mixture. The attack, however, recurring, he came into the Meath Hospital in the month of February last, labouring under symptoms less urgent, but of the same character with those I shall hereafter detail as present on his second admission. He was treated by Dr. Stokes with venesection, moderate mercurialization, repeated blisters, &c., and went out slightly improved about the beginning of April.

Being still, however, unable to work, and finding his symptoms returning with increased violence, he again came to hospital and was placed under my care the 1st May. His chief distress arose from excessive dyspnoea, almost amounting to orthopnoea; when he lay down, the only position in which he could breathe tolerably was on the right side. After a few weeks he found it impossible even to do this, and for eighteen or twenty days before his death he sat in his bed night and day, leaning forward as far as possible, and supporting his head by means of a pillow placed on his knees. A state more piteous could scarcely be imagined.

When admitted, his dyspnoea was increased by the least exertion, which brought on palpitations of the heart. He had a dry cough, with occasional scanty expectoration slightly tinged with blood; no pain in the chest, with the exception of slight stitches on making a full inspiration. He experienced some difficulty of swallowing, and referred the cause of obstruction to the

lower part of the throat. There is no soreness in any part of the chest, but he complains of some pain about the right shoulder. His face is bloated, pale, and looks as if it were slightly oedematous; this, together with a certain appearance of the eyes as if the balls were somewhat protruded from the sockets, and a marked dilatation of the nostrils during breathing, gives his countenance an expression of distress and suffering. The right jugular vein was much distended, as were the veins in the right axilla; but this symptom was chiefly remarkable on the surface of the belly, where two veins, corresponding to the situation of the superior epigastric artery, pursued a remarkably tortuous course along each side of the linea alba, being turgid and dilated to the size of swans' quills.

This circumstance indicating some obstruction at the right side of the heart, I then considered as affording indubitable evidence of disease of the heart itself. The dissection proved that the cause lay not in the heart, but in the impervious state of the right lung, in consequence of which the black blood had its exit from the right side impeded; none, or nearly none, passing through the pulmonary artery to the right lung. In truth, engorgement of the venous system, although it may indicate an obstruction somewhere in the central portion of the system of black blood, yet it by no means points out the exact seat of that obstruction; the obstruction may occasionally be even on the left side of the heart. With regard to the serpentine course of the abdominal veins, I find several such cases recorded, particularly one by Dr. Wright of Baltimore, in his contributions to cardiac pathology, and one of a very remarkable nature by M. Renaud, in which the superficial veins of the abdominal parietes carried on a collateral circulation where the *vena cava* was obliterated.

His bowels were constipated, and subject to griping pains. Urine scanty and high coloured; loss of appetite; night sweats; slight thirst; tongue clean; pulse 100, regular, and compressible.

Examination of chest.—The intercostal spaces on the left side are more distinct, deeper, and more dilated in respiration than those on the right; the latter, however, although not so well marked, are by no means obliterated or distended by pressure from within. The right side of the chest measured about half an inch less than the left.

Percussion.—Left side anteriorly, a clear sound everywhere, until we came within an inch of the sternal median line, where it became dull. Posteriorly, everywhere a clear sound. Right side, universally over every part, as dull as possible.

Respiration.—Puerile over the whole of the left side, except on approaching the sternal median line, where it assumes a tracheal character. This tracheal respiration is observed over a great part of the anterior part of the right side, where it is very loud and distinct above the mamma, feebler immediately below it, and is almost entirely lost still lower. On the posterior part of the right side, the loudness and tone of the respiration are not by any means so decidedly tracheal as anteriorly; to some the sound heard appeared to be more allied to bronchial respiration, and it is certainly bronchial in one part, near the spine. No rales are audible in any part of the chest.

Voice.—At the upper and anterior part of the right side, the voice is resonant, approaching to, if not identical with bronchophony; elsewhere, nothing remarkable was observed with respect to the voice.

Heart.—Pulsates in its natural situation, but its sounds are heard over a great extent, being audible under both clavicles, and over the whole of the

right side. Right side of chest, during respiration, obviously moves much less than the left, and when he speaks, the hand placed on it feels the vibrations caused by the voice feebler on the right side than on the left.

These physical phenomena remained unvaried until his death, except that all traces of bronchial respiration soon disappeared from the right side of the chest, except at one spot near the spine; and where anything was heard in other parts, it was now evidently a tracheal wheezing which masked all other sounds.

When this patient entered the hospital on the 1st May, the abdomen felt natural, and no enlargement of the liver could be felt, but after some time the liver appeared to have been rapidly altered, and could be distinctly felt far beyond its usual limits, forming a hard visible tumour in the hypochondriac and epigastric regions. At the same time his stools became clay coloured, and he was jaundiced. The yellow colour, however, was not of a deep, but of a light lemon shade.

Another remarkable phenomenon developed itself before the termination of the disease: whenever he lay down, that instant a loud wheezing was heard in his chest, accompanied by a sensation of imminent suffocation; the dysphagia increased likewise, but was never very urgent. The want of breath and a total want of sleep, with inability to lie down, and various symptoms of indigestion, reduced him to a most wretched state of suffering; his face and neck became daily more oedematous, and the eyelids, transparent, and distended with yellow serum, were swollen in such a manner, as nearly to close his eyes for many days before death put an end to his sufferings, on the 15th of July, after a violent paroxysm of pain in the belly, to which he had latterly become subject.

Three tumours had been observed on his body, and they had latterly increased in size with great rapidity. They were immediately under the skin, which was unchanged in colour,—smooth, of a round form, of the size of walnuts when observed on the first of May, but now very nearly as large as oranges. They were slightly moveable at first, more fixed afterwards, and never accompanied by the least pain or soreness: at first they felt solid, but afterwards more elastic, as if they were distended with fluid contained in a firm capsule; they were situated on the forehead, ramus of the lower jaw, and near the lumbar spinal processes.

The following were the morbid appearances found on dissection:—

Chest.—Left lung collapsed, perfectly healthy. Right lung, or rather the contents of the right side of the thorax, adhere everywhere to the parietes, by means of an intimate adhesion between the pleura costalis and pulmonalis. The pleura is exceedingly thickened and dense. In place of the right lung was found a solid mass, weighing more than six pounds, with an irregular, somewhat nodulated surface, this mass filled completely the right cavity, but did not protrude between the ribs, so as to distend notably the intercostal spaces; it encroached, however, upon the other side of the chest, extending a little beyond the median line, enveloping, and nearly concealing from view, the pericardium, great vessels, and trachea. This solid mass was removed with difficulty, on account of the adhesions, and was found to present, over a small portion of its posterior surface, a thin stratum of lung, nearly impervious to the air. The solid mass was found to be everywhere homogeneous, firm, of a white colour, slightly stained with bile, and tolerably firm and consistent in its structure, which resembled a brain partly hardened by artificial means.

When cut, each section exhibited an oozing of the softer brain-like fluid

mass from the exposed surfaces, which oozing was much increased by pressure ; so much, indeed, that it was obvious that the soft cerebriform matter bore a large proportion to the cellular and other structures in which it was lodged, and upon which the firmness and apparent solidity of the whole depended. The mass was somewhat lobulated posteriorly, and contained a few small cysts filled with a jaundiced serum. The right bronchial tube could be traced for a short distance into the substance of the mass, but was considerably diminished in calibre ; the heart was pale, and rather atrophied ; its great vessels seemed to run through the substance of the mass which surrounded the base of the heart, so that only its lower part was visible.

Contrary to expectation, the liver was found perfectly natural in size, but the gall bladder was enormously distended with bile, and was at least three times its natural size. The apparent tumefaction of the liver was owing to its being depressed by the thoracic tumour. A tumour, consisting of several smaller ones, occupied the situation of some of the mesenteric glands, and equalled two fists in size. It consisted of the same cerebriform substance as that observed in the chest, and appeared to have arisen from degeneration of the mesenteric glands. This tumour pushing the transverse arch of the colon upwards, and the small intestines downwards, pressed upon the ductus communis choledochus, so as to prevent altogether the passage of bile into the duodenum, while its lateral portions extending to the kidneys pressed upon these organs. The substance of the liver was healthy but green, being injected with bile.

Such are the most important particulars of this remarkable case, which, during the patient's life, proved an opprobrium to the science of diagnosis, for it is scarcely necessary to observe to you, that both Dr. Stokes and myself were completely mistaken as to its nature. I forgot to mention, that in addition to the other symptoms of a moribund state of the heart's action, a very loud *bruit de soufflet* was at times observed, chiefly at the right side of the heart. Aneurism, circumscribed pleuritic effusion, and enlargement of the heart ; pleuropneumonia, pleurisy, and hepatization in consequence of the previous pneumonia ; solidification from tubercles, &c. &c., were each successively advocated : as to myself, I became quite tired of the difficulty of attempting to explain the phenomena observed, with any of the diseases I had originally fixed on as the cause of the symptoms ; and latterly, however erroneously positive I had been when I took the man under my care, I gave up all further attempts at diagnosis ; and yet it seems strange that the external tumours did not awaken a suspicion of the true nature of the case, for although we were not permitted to examine them, their nature was certainly the same with the internal. The truth is, that these very tumours served only to mislead me still further, for I considered them as common scrofulous formations. At the present stage of our investigations on this subject, it is premature to attempt pointing out the true features, which may hereafter serve for making a correct diagnosis in similar cases ; some of these features are sufficiently obvious, but we must wait for additional facts before the symptoms peculiar to this disease can be pointed out with accuracy.*

A case of cerebriform tumour in the chest has been described by Dr. Stokes and myself, in the fifth volume of the Dublin Hospital Reports, and another, of which I shall read you a summary, has been communicated to me by Dr.

* These have been since admirably described in Dr. Stokes' excellent memoir on the *Diagnosis of Cancers of the Lung and Mediastinum*, in the 21st volume of the Dublin Medical Journal, first series.

Houston :—"A rare specimen of diseased lung, presented to the museum of the Royal College of Surgeons by the late Professor Todd, but of which no history was procured, as the individual, the subject of it, was in a dying state when brought into hospital. It was only learned that the disease had been the work of years ; that the individual who bore it had never been much affected with pain ; that the principal features of the complaint had been a continually increasing difficulty of breathing, and distressing dry cough, aggravated at times by exposure to cold, or attempts at hard labour ; and that the right side had been latterly observed to grow larger than the left : the patient was about 20 years of age.

"On dissection some hours after death, both lungs were found much diseased, but the right was particularly altered in structure. Tumours of various sizes, from a pea to an orange, were interspersed everywhere throughout it, in such masses as to have caused the absorption of nearly the whole of the original structure. The larger bronchial tubes, some thin strata of vesicular lung among the less overgrown tumours, with a small part of the superior lobe, were the only traces left unchanged. The tumours were all encysted from the commencement ; they consisted of a glairy, thick material, of a white colour, like pus, supported in a fine cellular web, which grew from the inner surface of the cyst, and gave such a body to the tumour, that when cut into it retained its form, and did not fall to pieces. From their first formation to their fullest growth, the tumours partook of the same characters ; the only perceptible difference between the very small and very large ones lay in their greater tendency, as they grew big, to adhere and run into each other, and in the increasing proportion of fluid to solid parts. The fluid admitted of separation from the cellular basis, by friction or maceration in water. A preparation made in this way is preserved in the museum, showing the cyst and cellular tissue of one of the tumours.

"This diseased mass adhered firmly at every point to the parietes of the chest ; had even grown larger than the cavity in which it lay ; had protruded the intercostal spaces, and pushed aside considerably the mediastinum and heart. The disease had made less progress in the left than in the right lung ; and in both its advancement was greater in the lower than in the upper lobe."

I may conclude with observing that one-half of Keating's diseased lung is preserved in the museum of the College of Surgeons, and the other in the museum at Park-street.

LECTURE XLIII.

PNEUMOTHORAX.—PNEUMATOSIS.

WE have to-day, gentlemen, a case of very interesting pneumonic disease, to which I would direct your attention. It is a case of very complicated lesion of the lung, occurring in a man of the name of Michael Irwin; but what renders it most remarkable is, that notwithstanding the extensive and complex nature of the ravages committed by disease, all its symptoms had been described with perfect accuracy by Dr. Houghton, in the first volume of the Dublin Medical Journal, six months before the patient's decease. We had on yesterday an opportunity of verifying Dr. Houghton's statements, and I must say that his stethoscopic knowledge does him infinite credit, and furnishes the advocates of the stethoscope with an additional proof of its value and utility.

There are not less than five or six morbid alterations in the lungs and their appendages, and all these, observed on the dissection of the patient on the 24th of January, 1833, have been described in a paper published in the beginning of July, 1832, and give a remarkable proof of the certainty of diagnosis by the stethoscope. Who is there that would, fifteen years ago, venture to give a precise description of the organic lesions of an obscure pulmonary complaint? Yet here we have this accomplished, and all the morbid changes detected with the greatest accuracy.

Such of you as have read the paper in the Journal, will recollect the detail given at the time of the symptoms; the affection of the left pleura; the presence therein of air and pus; the compressed state of the corresponding lung; the existence of tubercular cavities and fistulous passages in its substance communicating with the pleura, and the tuberculated state of the right lung. All these, and the stethoscopic signs so accurately given, have been accounted for by the phenomena observed on dissection. We find the left side of the chest measuring an inch or an inch and a quarter less than the right. The left pleura contained a little air, which escaped on its being opened, and about two pints of pus. On forcing a quantity of air into the lung by means of a bellows, the pipe of which was introduced into the trachea, it escaped in bubbles through the fluid contained in the cavity of the pleura. The costal pleura was remarkably thickened, cartilaginous, and flocculent on its internal surface; the pleura pulmonalis had a similar appearance. The lung was compressed laterally from top to bottom, and adhered posteriorly to the distance of about two inches from the spine, and also towards its summit. At the upper part, the lungs contained several large tubercular cavities; lower down, and corresponding to the angle of the scapula, there were two fistulous openings about an inch apart. Anteriorly, about the commencement of the cartilage of the third or fourth rib, there was another, much larger than the former opening. The right lung was filled with tubercles. The heart lay in the mesial line, a little to the right of its natural situation; it was rather large, and both of its

ventricles were dilated, particularly the right. The liver had an old cicatrix on its surface, extending inwards ; it was whiter than usual. There were a few ulcerations in the ileum, and very extensive ones in the cæcum.

Here you have an instance of extensive disease arising from tubercular development and serofulous inflammation of the left lung, in consequence of which, cavities filled with pus are formed in its substance ; these are followed by the formation of fistulæ, which opening into the pleura produce a violent degree of inflammation, and convert the pleura into the enormously thickened mass you here see. If you were to dissect this pleura with care, you would satisfy yourselves that the increase of thickness is owing to the successive depositions of coagulable lymph on its surface. Serous membranes, when inflamed, throw out in succession thin coats of lymph over their surface to a greater or less extent, and these, like one sheet of paper pasted over another, become, each in its turn, firmly consolidated with the parent membrane. It seldom happens that we have any considerable increase in thickness from interstitial deposition, nor do I believe that it ever exceeds a line. Now we have here a very remarkable state of the pleura, and, in addition, air and pus contained within its cavity, with which we find three fistulous openings communicating ; and these in all probability are connected with three cavities in the lung, each of which communicates with the bronchial tubes.

With respect to this case, it is an example of the disease called *pneumothorax*. By pneumothorax is meant air in the cavity of the chest, where, of course, it should not exist. You may say, perhaps, that there is always air in the cavity of the chest ; but by the cavity of the chest here, we mean the cavity of the pleural sac. I would not have detained you in speaking of the name of this affection, had it not been observed by Dr. Elliotson in his lectures, that this name has been given to it without a proper consideration of the rules of combining Greek words, and that the proper way of writing it would be pneumoto-thorax. I would, nevertheless, adhere to the old mode of writing this word. We leave out the letter T for the sake of euphony, and thus render the word more musical ; besides, this term has been consecrated by its illustrious inventor, Laennec.

One of the most remarkable circumstances in the present case is the length of time between the development of the disease and the death of the patient. He had symptoms of pneumothorax in July, 1831, and died in January, 1833, having lived a year and a-half after he had been attacked. Again, at three different periods, namely, July, 1831, December 2nd, 1831, and September 26th, 1832, he had distinct and severe attacks of feverishness and pain, showing that at each of these periods some new lesion was going on in the lung, and this, as we subsequently ascertained, was the formation of fistulous openings. The first was in July, from which he recovered, and this continued until December, when a fresh opening formed, accompanied by a new train of symptoms. On the 26th of September another formed ; and it is a remarkable fact, that all the phenomena connected with these separate openings have been distinctly described by Dr. Houghton. There cannot be the slightest doubt that each of the days designated by him were those days on which fresh communications were established between the abscesses in the lung and the pleural sac. On examining the shape of the lung, you find it compressed from before backwards, so as to form a thin plate lying up against the mediastinum, the pleura and its contents occupying the arch of the chest. This accounts for the dullness of the sound posteriorly, between the angles of the ribs and spinal column, where the thick and carnified portion of the

lung lay. The existence of the fistulous openings, corresponding to the angle of the left clavicle, which communicated with the abscesses, and through them with the bronchial tubes, will explain the occurrence of bronchial respiration in this situation, for here we could detect the sound of the air rushing through the larger bronchi. It is over the place of these openings, also, that the metallic tinkling was most remarkable during life, and opposite the anterior one the *bourdonnement amphorique* was occasionally heard.

In the case I have now called your attention to, the air found in the pleural sac made its way into it through the fistulous openings connected with the bronchial tubes. This is the ordinary form of pneumothorax, but although the fact has been doubted by many writers, my experience leads me to the conclusion that air may be *secreted* into the pleural sac. Andral, who at one time believed that pneumothorax might occur thus, has, I find, changed his opinion, and in some lectures recently published* states that air is never met with in any shut sac unless it has made its way there by rupture. Now, the following are my views:—Where there has been long continued loss of blood from any cause, the blood contains an unusual quantity of air; for nature, by absorbing air in such cases, makes an effort to keep the vascular system sufficiently full; and *this air may be secreted into any part of the body.*

Since the publication of John Peter Frank's celebrated work *De Curandis Hominum Morbis*, in the sixth book of which this subject has been treated at great length and with his usual ability, few authors appear to have studied this class of diseases with the attention it deserves; and yet the improvement lately made in our knowledge of the laws which regulate the diffusion of gases, and their transition or passage through the textures and membranes of the living body, and our more intimate acquaintance with the phenomena of healthy and diseased secretion, ought to enable pathologists of the present day to enlarge the limits of this important department of medical science. Until this is done, I most anxiously refer medical students to the excellent remarks of Frank already spoken of.

Not having time at present to enter into the philosophy or general pathology of pneumatosis, I shall content myself with bringing forward a few facts connected with this subject. And, first, with regard to the occurrence of a collection of air within the cavity of the pleural sac; in the latest publications, as I have already remarked, the existence of such a disease as *simple* pneumothorax is scarcely admitted. Thus, in an article in the *Cyclopædia of Practical Medicine*, Doctor Houghton, in speaking of Pneumothorax from gaseous secretion, says, "This variety has not been decidedly established by the observations of other pathologists since the time of Laennec, and we *record its existence* merely on his authority and on that of Andral, who relates a case of it, in which, however, this origin was not unquestionably proved."

On this point I may observe, that these are not the only authorities which might be cited in support of the existence of pneumothorax from gaseous secretion, for Frank long ago described a case in which paracentesis of the chest was performed for the purpose of giving exit to a suspected accumulation of pus within the pleural cavity, and in which the operation gave vent to a large quantity of air; *ne guttula quidem puris, sed aer cum strepitu prorupit.*" The patient perfectly recovered. There seems indeed to be no good reason why air should not occasionally collect in the cavity of the chest, as a consequence of a diseased secretion from the pleural serous membrane, as well

* *Medical Times*, 1847.

as in the cavity of the peritoneum, in consequence of a morbid secretion of air from the internal surface of the peritoneal serous membrane, an occurrence acknowledged to be very frequent. The following cases appear to establish the fact that there is such a disease as pneumothorax, in which the air accumulated within the pleural sac is not derived from the external atmosphere through a fistulous opening communicating with the bronchial tubes, nor from decomposition of fluid effused in consequence of pleurisy into the cavity of the chest, but from the direct secretion of air from the pleural sac, in consequence of a low degree of inflammation affecting the serous membrane. Frank brings forward abundant and striking facts to prove that the subcutaneous areolar membrane (a tissue the products of whose inflammation are identical with those of serous membrane), may secrete air in abundance, and thus give rise to emphysema, when in a state of slight inflammation; there can be no difficulty, therefore, in conceiving a similar result from a certain degree of pleural inflammation.

I was called by Dr. Dwyer to visit a young gentleman affected with cough and mild feverish symptoms. Indubitable evidence was afforded by the stethoscope and percussion of a considerable portion of the lower lobe of the left lung being on the verge of hepatization, for there were dulness, bronchial respiration, and very obscure crepitus, with bronchophony over the affected infero-posterior portion of the lungs. In no other part of the left lung whatever was there dullness; indeed, the reverse was observable over its infero-anterior portion, which gave a preternaturally clear sound, particularly in the region usually occupied by the heart. It was evident that no effusion of fluid existed in addition to the pneumonia detected at the base of the left lung. On closer examination we were, therefore, greatly surprised at finding that the heart was pushed out of its place, and pulsated quite close to the mamma on the right side.

Had the heart been pushed *thus far out of its place* by fluid effused into the left pleural sac, it is clear that the fluid must have been very considerable in quantity, and *must have necessarily filled the space usually occupied by the heart, as well as that through which the heart was forced* in pushing the mediastinum from the left to the right side. Obvious considerations make it impossible for the heart to be dislocated as this young gentleman's was, so far to the right side, by means of an effusion of fluid into the left pleural sac, without the occurrence of extensive dulness or the other physical signs of empyema in the infero-anterior portions of the left side of the thorax. No case of dislocation of the heart by means of fluid to such an extent has ever been recorded, without these signs being at the same time observed most extensively in the left side of the chest.

In this case, however, the heart was dislocated as already described, and yet not a single physical sign of the presence of fluid in the left side existed. Some who examined this case advanced the opinion, that the heart was dislocated by means of the stomach being distended with wind. The relative anatomical positions of the heart and stomach render it actually impossible for the latter, even when distended to a maximum, to push the heart in the slightest degree towards the right side;—indeed, in the numerous distressing cases of ventricular and intestinal tympanitis which I have witnessed, even in those where the belly has been most inflated, I have never seen such an effect; but it is unnecessary to controvert this opinion further, for in a day or two the belly became quite fallen and soft, while the heart's dislocation still continued.

There is no other way then of accounting for the latter phenomenon, except the supposition that the heart was pushed out of its place by air effused into the left pleural sac, in consequence of a certain degree of pleurisy accompanying the pneumonia of the left lung. The physical signs such an occurrence must necessarily give rise to would perfectly agree with those observed. It is important to add, that the inflamed portion of the left lung now went through the usual process of healthy resolution, but that the heart had regained its natural position many days before the resolution of the pneumonia was completed; an occurrence we can readily explain on the natural supposition that the absorption of the effused air was a process more easily and readily performed by the pleura when its inflammation was cured, than was the restoration of the lung to its original healthy structure after the pneumonia had been checked.

A recent writer on pneumothorax expresses himself on this subject in the following words:—

“*Pneumothorax* may be produced in three different ways:—1. It may be the consequence of a partial pleurisy. We have mentioned, that after a pleuritic effusion has long compressed the lung, and the compression has been perpetuated by a rigid false membrane formed over it, the absorption of the liquid leaves a void, which the collapse or contraction of the walls of the chest is in some cases insufficient to obliterate, and this void is sometimes filled with air secreted by the membranes. We have seen two instances of partial pneumothorax produced in this way. They each occupied about half of the pleural sac, in one case the upper, in the other the lower half; and the lung in both cases was strongly bound down by fibro-cartilaginous membrane, and condensed in the part contiguous to the empty space. There was also some contraction in the chest in both cases. This kind of pneumothorax is very rare.

“Another kind of pneumothorax is that which may be called idiopathic, and arises from an effusion or secretion of air into the sac of the pleura without perforation. This is also of very rare occurrence. It is said to occur sometimes towards the termination of fatal diseases, in the same manner as tympanitis occasionally occupies the peritoneal sac under similar circumstances. We have never met with such a case in which the signs of pneumothorax were observed during life; but we have several times seen a little air in the pleural sac when it is opened after death, without any discoverable perforation of the pleura. It is possible that a little air may have been exhaled from the animal fluids after death, and then increased by exosmosis through the lung. The facility with which gases pervade dead membranes countenances such a notion. Pneumothorax is also said by Drs. Hudson, Graves, and others, to have occurred in a few instances at the commencement of pneumonia, and to have soon afterwards disappeared; but as the chief sign in these cases was a remarkable resonance on percussion, we suspect that these were examples of the production of tracheal or amphoric sound, from consolidation of the upper lobe of the lung, and not cases of pneumothorax.”—*Library of Medicine*, vol. iii. p. 129.

You will perceive from the above passages that Dr. Williams seems unwilling to believe in the existence of such a disease as pneumothorax from secretion by the serous membranes, and he informs us that “after a pleuritic effusion has long compressed the lung, and the compression has been perpetuated by a rigid false membrane formed over it, the absorption of the liquid leaves a void, which the collapse or contraction of the walls of the chest

is in some cases insufficient to obliterate, and this void is *sometimes* filled with air secreted by the membranes." Here he admits that the membranes are capable under certain circumstances of *sometimes* secreting air to fill the void left by the absorbed fluid ; and he might have added, that in all cases where an absorbed effusion has not been followed by contraction of the side, or a return of the lung to its fully expanded condition, the space previously occupied by the effusion is now filled with air secreted by the pleura. This is a wise provision ; for it must be evident to every one that such a condition as is implied in the sentence I have just quoted, viz., the existence of a perfect vacuum between the collapsed and compressed lung and the parietes of the chest, is totally inconsistent with the well known laws of atmospheric pressure.

As regards the last sentence of the paragraph, I beg to state that Dr. Williams could not have read the foregoing case with any degree of attention, or he would have perceived that the conclusion I arrived at was not drawn solely from "the remarkable resonance on percussion," which he suspects arose from "tracheal or amphoric sound produced by consolidation of the upper lobe of the lung." It will be recollected, that in addition to the signs of the presence of air in the pleural cavity, we had dislocation of the heart as complete as I ever witnessed in empyema ; and until Dr. Williams can exhibit a case of consolidated upper lobe, with tracheal or amphoric sound, producing dislocation of the heart and the other phenomena observed in this case, I shall continue in my belief that these phenomena were produced in the way I have mentioned.

The following case also fully corroborates the opinions I have now advanced, and establishes the existence of such a disease as *simple pneumothorax* :—

The Rev. Mr. —, a gentleman about 40 years old, with a largely developed chest and robust frame, caught cold and was attacked with cough, pain in the right side, bloody expectoration, and, in short, the usual symptoms of very intense pneumonia, commencing in the inferior portion of the right lung, but advancing rapidly upwards, until the whole of that lung was engaged in the disease. As the inflammation extended, the inferior portion of the lung became engorged with blood, and totally impervious to the air, and consequently the part of the chest corresponding to it everywhere yielded a dull sound on percussion, while the superior part on the right side was as sonorous, when percussed, as the left or healthy side of the chest. Such was the state of things on the third day of the disease.

On the morning of the fourth day a remarkable change was found to have occurred in the course of the night ; anteriorly the dulness of the lower portion of the affected lung still continued, and, indeed, could not be greater ; but from a little below the right mamma, as far up as the clavicle, which region, at the preceding visit, was naturally sonorous, the chest yielded a preternaturally clear and hollow sound, that at once attracted the attention of Sir Henry Marsh and myself ; for twelve hours previously no such morbid clearness had existed. No respiratory murmur whatever could be heard in this region, and, consequently, we were led to the conclusion, that the subjacent lung was here pushed back and compressed by air effused into the cavity of the pleura.

As the disease was altogether confined to the right lung, we could more accurately compare and contrast the phenomena presented by the corresponding region of the left side of the chest, with those observed on the right, and

we found that the former, naturally sonorous, and of course much less clear on percussion than the upper portion of the right side, was performing its proper functions with increased energy, everywhere presenting well marked puerile respiration. The existence of pneumothorax occupying a considerable portion of the right pleural cavity was, therefore, evident; but the source of the air was not so clear. I reminded Sir Henry Marsh of the other case, in which I observed pneumonia combined with simple pneumothorax, and after a careful consideration of all the symptoms of our patient, he concurred with me in thinking it highly probable that the present case was one of a similar nature.

Our patient had a well-formed and remarkably capacious chest, was of a very strong constitution, and before this attack enjoyed an uninterrupted state of good health. In such a person the pre-existence of tubercles was most improbable, of a tubercular abscess almost impossible; we, therefore, rejected the idea of the infused air being derived from the bronchial tubes through the medium of a fistulous communication, and adopted the opinion, that the pneumothorax was caused by air suddenly secreted by the inflamed pleura. The correctness of this opinion was established beyond the possibility of doubt, both by the subsequent progress of the symptoms, and by the speedy and perfect recovery of the patient; for it is almost unnecessary to observe, that a recovery where pneumothorax depends on a fistulous communication is, if indeed it ever takes place, of the rarest occurrence, and never takes place rapidly.

At our next visit, in about sixteen hours after, we found the whole region that had been preternaturally clear on percussion, now as dull as possible, and presenting a very obscure respiratory murmur, mixed with some crepitus. The crepitus was evidently close to the ear, if I may use that expression, and we now felt no doubt that the air so suddenly effused had been as suddenly absorbed, and its place occupied by the inflamed and engorged lung. In the course of four or five days, under proper treatment, this dulness began to diminish, and nearly disappeared in a few days more, during which time the respiratory murmur proportionably increased, and the gentleman afterwards rapidly recovered. It is peculiarly gratifying to me, that the preceding facts fell under the notice of a physician of such experience as Sir Henry Marsh, upon whose accuracy of observation such full reliance may be placed. This case I consider quite sufficient answer to the remarks of Dr. Williams, which I have already cited; and together with the case I observed along with Dr. Dwyer, added to the evidence of Laennec, Frank, and others upon the subject, leaves no doubt whatsoever of the existence of such a disease as pneumothorax from gaseous secretion.

As I have been speaking of the secretion of air into the pleural sac, permit me to devote the remainder of this lecture to some observations on other forms of pneumatosis. The next species I shall consider is the abdominal, of which there are two varieties, the intestinal—where the accumulation of gas takes place within the alimentary canal, and the peritoneal—where it occurs in the peritoneal sac. Frank's observations on this subject are extremely interesting, but do not point out any clear mode of distinguishing these varieties from each other. It must be confessed, indeed, that they both occur together in some cases, and then the diagnosis is, of course, impossible; in general, however, *particularly when chronic*, the peritoneal pneumatosis, or tympanitis, may be distinguished with sufficient accuracy. In this variety of the disease, the general health is unaffected, the appetite

good, the bowels regular, and the patient does not complain of flatulence, borborygmi, or colicky pains. The shape of the belly, too, in peritoneal tympanitis is more prominent and globular than in the intestinal, and in appearance more closely resembles the abdomen of a woman far advanced in pregnancy. The latter circumstance, indeed, often constitutes the sole annoyance complained of by the patients, who are generally young unmarried females.

As a contribution to the diagnosis between chronic intestinal and peritoneal tympanitis, I may observe, that in the latter, change of posture always produces a change in the situation of the most sonorous part of the belly, which invariably occupies the most elevated part. This, to a certain extent, likewise takes place in intestinal tympanitis, but not in so remarkable a manner as in the peritoneal. Thus, in the case of Mary Callaghan, aged 15, admitted into Sir Patrick Dun's Hospital in April, 1833, there was no derangement of the general health; her appetite was good, tongue clean, and she was not at all annoyed by borborygmi or flatus in stomach or intestines; the bowels also were regular. All this was inconsistent with intestinal tympanitis; her abdomen was globular, and measured thirty-one inches round the umbilicus, which, considering her age and slender make, argued a great increase in size. When she lay on her back, the anterior and antero-lateral portions sounded clear, the postero-lateral portions dull; when she lay on one side, the opposite side of belly then sounded clear. This peritoneal tympanitis *had gradually attained to its present magnitude during the preceding year.* It did not affect her respiration; there was no œdema of the extremities, and the abdominal tumefaction was not subject to temporary alterations in size, either from eating any particular article of food, or any other cause.

I have seen several cases similar to this, unaccompanied by menstrual derangement, and where the unseemly appearance of pregnancy was the cause of much annoyance. I must confess that all the remedies I have tried in such cases have generally failed altogether, although the greatest diligence was used in applying stimulating and carminative liniments, bandages round the belly, &c., &c. In such cases I have administered, without good effects, oil of turpentine by the mouth and in injections; iron, bark, iodine, diuretics, and a continued course of smart purgatives, together with the tepid salt-water shower bath, but have not found any of these means useful; for the disease has resisted them all, and continued month after month unabated. It is chiefly with a view, therefore, of eliciting further information on this subject that I have made the foregoing observations; for although the disease in question is often quite unattended with any feeling of abdominal tenderness, or indeed any symptom of deranged health, yet the females so affected, and their friends, look for its cure with anxiety, and naturally become impatient when they find the size of the abdomen undiminished, notwithstanding the application of various remedies.

When peritoneal tympanitis arises very suddenly in the course of a few hours, or of a few days, the prognosis is much better, and we have a much less obstinate disease to contend with, as it seldom continues long, and often disappears as suddenly as it came. This tractable variety occurs not merely in unmarried hysterical females, but also very frequently in women shortly after delivery. The chronic peritoneal tympanitis is of common occurrence in charitable institutions devoted to the education and support of young females, and then it seems connected, in most instances, with a scrofulous diathesis, produced by confinement and an exclusively vegetable diet.

The peritoneal tympanitis may occur as an acute disease arising from peritoneal inflammation, and complicated with intestinal tympanitis, and then it is not rare to see the intestinal tympanitis disappear when the inflammatory symptoms have been overcome; while the peritoneal tympanitis continues for a long time unabated, without, however, producing any inconvenience but that arising from a certain feeling of distention it produces. A succession of blisters and mercurial ointment appeared useful in such cases.

In these observations I pass by, without notice, the common and well understood form of intestinal tympanitis met with every day in hysterical females, and giving rise to abdominal tumefaction, sometimes confined to one portion of the alimentary canal, and sometimes apparently extending over its whole extent; a form of tympanitis often as remarkable for the suddenness of its disappearance as for the multiplicity of hysterical symptoms by which it is usually accompanied.

I have already adverted to the occasional occurrence of spontaneous emphysema seated in the subcutaneous areolar tissue; I have nothing to add to the full and beautiful description given by Frank of this, except the following remarks on that variety of the disease which sometimes follows great loss of blood. In the *Gazette Medicale*, tom. iii., no. 103, is a very interesting memoir by M. E. Rebolle de Gex, on *A New Species of Emphysema, developed after profuse Hemorrhage*. In one patient, named Ducret, who died in the Hotel Dieu of repeated attacks of profuse epistaxis, and whose body was examined fifteen hours after death, before the least symptom of putrefaction had commenced, the coagulated blood found in the heart and large vessels contained numerous small cells filled with air, and in fact was emphysematous. The large vessels contained many small bubbles of air, but this phenomenon was still more striking in the smaller veins, where it resembled the contents of a spirit of wine thermometer into which bubble after bubble of air had been introduced. When the vessels were divided, gas escaped with the blood.

Another case, related by the same author, and several experiments on animals which he instituted, leave no doubt of the fact, that gas exists in the circulating system after profuse hemorrhage. I do not know when I was more pleased than on happening to meet with Rebolle de Gex's memoir, for a case precisely similar to those he has related occurred in my own practice last spring, at which time I had never heard of any facts analogous to what I then observed, and I was consequently much embarrassed in endeavouring to account for it.

A gentleman about fifteen years of age, residing in the neighbourhood of Dublin, was attacked with excitement of the vascular system and a quick thrilling state of the pulse, which ended in repeated attacks of profuse epistaxis. This hemorrhagic tendency was probably connected with hypertrophy of the heart, and had produced an extreme degree of debility, when Mr. Kirby, who was in attendance with me, discovered that the subcutaneous areolar membrane of the abdomen had become emphysematous. Neither Mr. Kirby, nor Dr. Jacob, who was attending along with us, was aware that this emphysematous state arose from the preceding hemorrhage.

Everything connected with the development of gas in the vascular system is calculated to excite interest. I have already stated my opinion as to how it happens that hemorrhage predisposes to such an occurrence; I may also observe, that when air is once generated in morbid quantity, it may occasion the most fatal symptoms, as is proved by the sudden deaths which have occurred during operations, in consequence of the absorption of air into the

veins. Morgagni long ago expressed an opinion, that certain apoplexies depend on a morbid effusion of air within the cranium, and cites the authority of Hippocrates in support of this hypothesis. Valsalva mentions that he once found the heart and the veins distended with gas; Grotz witnessed the same in a woman who had died of suffocation, and Ruysch reports a similar phenomenon which occurred in a case of sudden death; but of the facts hitherto recorded, those observed by Rebolle de Gex and by M. Bally are the most remarkable, and well deserve the attention of pathologists, particularly of those physicians who have explained spontaneous combustion, on the hypothesis of an inflammable gas being in some cases developed in the areolar tissue.

In the case detailed by both these authors, on cutting the emphysematous parts, a gas escaped which ignited on the contact of the flame of a candle;* and in Rebolle de Gex's case, even the muscles were affected: for he says that when the muscles were pressed before the light, there was a sparkling and crackling like that which is produced by squeezing out the essential oil from an orange peel before a taper. As the morbid development of gas in this case was a *consequence of profuse hemorrhage following on operation*, it more especially deserves the notice of every practical surgeon.

* Bally's case, which occurred in the Hotel Dieu, *was not preceded by hemorrhage*. It is noticed by Dr. Apjohn, in an able article on Spontaneous Combustion, in the *Cyclopædia of Practical Medicine*.

LECTURE XLIV.

SPASMODIC ASTHMA.—PHTHISIS.

BEFORE I proceed to the more immediate subject of this day's lecture, permit me to say a few words on the pathology of spasmodic affections of the bronchial tubes. The investigations of Reisseisen and other anatomists have confirmed the old opinion revived by Laennec, that the bronchi are capable of spasmodic constriction. The researches of Rigot at the veterinary school of Alfort have confirmed the results obtained in the human subject, for Rigot has announced the existence of a muscular membrane or coat beneath the mucous membrane of the bronchial tubes, and has traced to that coat the greater part of the nervous branches derived from the bronchial plexus. "A similar distribution of the pulmonary nerves well explains, according to M. Rigot, the phenomena of suffocation observed after division of the pneumogastric nerves, and which are evidently nothing more than paralysis of the motor portion of the lung. In pursuing these researches, the Professor has often observed an obliteration of many of the divisions of the pulmonary artery caused by grey fibrinous concretions, similar to those which are found in old aneurisms. The existence of these fibrinous depôts always coincides with certain organic changes in the lungs, as induration, tubercles, grey hepatization, or simply an emphysematous state of the lungs."

This latter observation, if confirmed, is very important, and proves that when any portion of the lung discharges its respiratory functions imperfectly or languidly, the quantity of blood *brought to or attracted by that part* necessarily diminishes; and at length, if the impediment to respiration be complete, no more blood arrives at it through the channel of the pulmonary artery, and *the corresponding branch of that artery is consequently filled with coagulum.*

In many diseases, of which asthma is the best known example, the bronchial tubes are liable to sudden narrowing of their calibre. In pertussis the fit of whooping and coughing is often preceded for several minutes by an accelerated respiration, and a sudden and very remarkable increase of bronchial rales within every part of the chest, owing no doubt to bronchial constriction coming on for some minutes before the spasm has extended to the trachea and larynx.

I lately attended, along with Mr. Pakenham, a boy who laboured under frequent and violent convulsions produced by acute hydrocephalus. The moment the convulsions of the voluntary muscles supervened, a universal and loud wheezing took place in the chest, and continued as long as the fit lasted, and then ceased. This association between convulsions of the voluntary muscles and spasm of the bronchi is perhaps not so rare as is generally imagined.

Formerly physicians recognized spasmodic asthma as a separate disease, frequently occurring and requiring a distinct mode of treatment; but when

spasm went out of fashion, and morbid anatomy became an object of enthusiastic pursuit, the existence of this form of the disease was denied. Corvisart had shown that supposed asthmatic symptoms often depended on diseases of the heart, and others having demonstrated that asthma was occasionally produced by inflammation or dilatation of the bronchi, emphysema of the lung, &c. &c., the disbelief in the existence of pure spasmodic asthma became very general.

Of late years, however, a more accurate acquaintance with the construction of the bronchial tubes, and a more attentive examination of the physical phenomena which actually occur during the asthmatic paroxysm, have led pathologists back to the old opinion, and accordingly we find nervous or spasmodic asthma admitted in the catalogue of diseases by Laennec, by Forbes,* and by Copland.†

It was not without surprise, therefore, that I found the doctrine of the non-existence of such a disease as nervous or spasmodic asthma advocated by a physician of considerable celebrity—Dr. Clutterbuck,‡ who in his very valuable clinical lectures makes the following remarks: “Before going into particulars on this branch of our subject, it will be desirable to inquire how far the term spasm is really applicable to affections of the respiratory organs; or, in other words, to what extent the respiratory muscles are concerned in certain cases of dyspnoea; for it is to muscular structures only that spasm can be referred.

“The only muscles found in the course of the air-tubes are those of the larynx; but these, as before observed, have no share in producing genuine asthma. It has been conjectured, indeed, by some, I should not say proved, that the back part of the trachea that is placed between the extremities of the cartilaginous rings, and which has been generally considered as ligamentous merely, is in reality of a fibrous or muscular structure, and consequently, that spasmodic contraction of these fibres may be a cause of periodical asthma. To this it may be replied, that not only has a muscular structure, as here supposed, not been satisfactorily shown to exist, but contraction of the tube is particularly guarded against by the cartilaginous rings themselves; a structure that is gradually changed into ligamentous, as the tube divides and subdivides. Where, therefore, muscular contractility could serve no useful purpose, as far as we can judge, but where, on the contrary, it could only be exerted to the detriment of the function concerned, it seems unreasonable to infer the existence of spasm at this part, in order to account for the asthmatic paroxysm.

“But while I contend for catarrh being the true origin of asthma, I am not disposed to deny altogether the participation, to a certain extent, of the muscles of respiration, or rather I should say of the diaphragm, in producing the phenomena of the disease; whether the intercostal muscles have any share in the matter we seem to be wholly ignorant.”

When I first perused this passage, I was tempted to publish some remarks on the numerous anatomical errors it contains; but I was prevented from adopting this course by the consciousness that errors so obvious would find few supporters, and I preferred leaving to others the task of their exposure, if exposure were deemed necessary. Now, however, that I am engaged in the consideration of some circumstances connected with spasmodic affections of

* *Cyclopaedia of Practical Medicine.*

† *Dictionary of Practical Medicine.*

‡ *Medical Gazette*, July, 1840.

the bronchial tubes, it becomes a duty upon my part to notice Doctor Clutterbuck's opinion, as it is decidedly hostile to the supposition that such a disease even exists.

First, as to his assertion, "*contraction of the tube (i.e., trachea)* is particularly guarded against by the cartilaginous rings themselves." In making this assertion it is quite obvious Dr. Clutterbuck forgot the consequence which follows from the tracheal rings being incomplete, and circumscribing scarcely more than two-thirds of the diameter of the tube; an arrangement evidently made for the sake of permitting the diameter of the trachea to be diminished or increased. Secondly, as to Doctor Clutterbuck's assertion, "that the only muscles found in the course of the air-tube are those of the larynx," and again, "not only has a muscular structure, as here supposed, not been satisfactorily shown to exist" (*viz.*, in the back part of the trachea between the cartilaginous rings); all that is necessary to say is, that there never was, or could be, any doubt respecting the existence of a muscular membrane, which is about half a line in thickness when contracted, and is as obviously muscular as any other portion of the muscular system whatsoever.

Doctor Forbes and Dr. Copland have truly observed, that in accounting for the existence of spasm in asthma, we are not restricted (as Doctor Clutterbuck seems to imagine) to the part the muscular apparatus of the trachea performs, for there is no doubt that the whole system of the bronchial tubes enjoys the function of vital contraction, as is proved by the anatomical investigations of Reiseissen—to which I have at the commencement of this lecture called your attention, and confirmed by the physical phenomena observed in the respiration during fits of asthma, hooping cough, &c. Of the bronchial muscles, Meckel says,* "in the interior of the lung these muscular fibres increase in proportion as the cartilaginous rings diminish in size and number, and may be distinguished round the whole circumference of the smaller bronchial tubes, even where no further traces of the cartilages can be detected."

Thus, then, it is evident that to account for the spasmodic symptoms of asthma we need not have recourse with Dr. Clutterbuck to the diaphragm or intercostal muscles, but to the muscles of the trachea and bronchial tubes themselves; on the whole, therefore, we may conclude that those who have returned to the opinions professed by our predecessors are not so much mistaken as their opponents pretended.

Even where the paroxysm is intense in degree and duration, where the patient is obliged to sit up half the night; where any attempt to lie down produces symptoms of asphyxia: where hours are spent in extreme distress with lividity of face and lips, gasping, loud wheezing, and great fulness of the vessels of the head and neck; even under all these circumstances the attack may be nothing but a fit of pure spasmodic asthma. A person thus affected may spend a whole night in the way I have described, and yet, towards morning, he may sleep a few hours, and awake refreshed and comparatively free from dyspnoea, and in the course of the day may be able to go upstairs quickly, run, ride, even hunt without difficulty.

I have in my recollection the cases of several young men subject to severe paroxysms of asthma for five or six nights in succession, and who immediately after the paroxysm disappeared could use any active exercise as well as the most vigorous and healthy of their companions.

These facts establish the existence of a disease deserving the name of spas-

* French Translation, tom. iii. p. 516.

modic asthma, and show that very violent paroxysms of difficult breathing may occur in persons free from organic affection of the heart or lungs. When, however, any permanent change in the structure of the respiratory or circulating apparatus exists, then such changes become the exciting causes of paroxysms of dyspnoea, often closely resembling true spasmodic asthma, but readily distinguishable from it if due attention be paid to the history of the patient's sufferings and his state between the fits.

I have now met with so many cases of young persons in whom no trace of any organic complication existed, that it seems to me more than probable that spasmodic asthma is not so rare a disease as is imagined. In a little boy, some particulars of whose case I published, the attacks were frequent, violent, and to all appearance purely spasmodic; he got a very severe paroxysm of gout (hereditary from both his father and mother) in his foot, and has never since had asthma, though four years have now elapsed, and he has been subject to all the excitement and violent exercises of a public school.

Mr. Fleming, now of the Isle of Man, and Sir Philip Crampton, attended with me a young gentleman aged about twelve, who was subject to violent dyspnoea, increased by even the most gentle exercise; indeed for many months he could not walk even quietly in his room without incurring the risk of suffocation from want of breath, attended with palpitation, wheezing, and all the symptoms of approaching asphyxia; every remedy we could devise was tried most perseveringly for a year without the slightest benefit, when he got typhus fever, from which he narrowly escaped, but since his recovery he has never had even the least vestige of his former complaint.

These two cases exemplify, in a remarkable manner, the influence which the general state of the constitution often exerts on local affections.

Asthma, like all other nervous diseases, is subject to the most unaccountable variations, and is most uncertain as to the effects which our remedies or the influence of physical agencies produce. The following is an example. In December, 1839, I attended two gentlemen residing in the same street, and each about forty-five years old; neither was liable to any other disease, and they were both short and stout. On a very cold morning I found one of them very ill indeed; he had not slept at all during the night, and had every moment been on the point of smothering from asthmatic dyspnoea. The extreme violence of the paroxysm he attributed to the fact that his bed-room chimney had smoked occasionally during the night, and the weather was so cold that he was afraid to open the window to let out the smoke.

I ordered him to change his room, and I then proceeded to visit his neighbour, and found him sitting in a room full of smoke. He apologised to me for introducing me into so disagreeable an atmosphere, and explained that when the fit of asthma became very bad, the only sure means of obtaining relief which he knew of was to get a good coal fire lighted in the grate, which being done he made his servant occasionally obstruct the progress of the smoke up the chimney, and thus maintain a certain density of smoke in the room; this never failed, he assured me, to bring relief. This gentleman was of very active habits, was agent to several large properties, and consequently obliged to travel much about the country; experience had proved to him that he could derive no benefit from turf smoke, and therefore he never stopped at an inn where they had no other fuel but turf, as he felt himself insecure unless he could procure coal smoke in case of an asthmatic attack. Such *idiosyncrasies* will ever baffle the researches of the mere morbid anatomist, but afford a useful lesson to the practical physician.

The phenomena of this disease are calculated to throw much light on the nature of what has been termed wheezing. A person subject to asthma, who has been breathing tranquilly the whole evening, may be attacked before midnight with difficulty of respiration, and a wheezing so loud as to be heard on the stairs; this will continue for several hours, and then terminate in some with a copious discharge of sputa, *in others without any expectoration whatever*. When we apply the stethoscope to the chest of a person so affected, we hear a great number of bronchitic rales, showing that the larger and smaller tubes are both engaged; this is a matter of frequent occurrence in cases of dry asthma where there is no expectoration, and where the fit terminates in a few hours, not leaving behind the slightest trace of pulmonary derangement.

Hence we are led to the conclusion that sounds of various characters and remarkable intensity may be produced without any inflammation whatever, and in fact without any remarkable alteration in the secreting functions of the bronchial mucous membrane, and that these sounds may wholly disappear where there has been no expectoration, and consequently where the bronchial tubes have not been cleared out. This is a fact worthy of being held in memory. Stethoscopists, when they hear bronchial rales, are apt to attribute them to the existence of bronchial inflammation; but here, with distinct proofs of the absence of inflammation, you may have a *maximum* of bronchial rales, and in the space of a few hours you may not have a single sound at the very points where so many were audible before.

It is obvious, therefore, that some of the received doctrines on the subject of bronchial rales are still open to discussion. The practical inference, however, to be drawn from this fact is, that we should study such rales with great attention, and in connection with other signs and symptoms, lest we be induced to treat antiphlogistically a case in which depletion might be uncalled for or injurious, an error by no means unfrequent among those who rely too exclusively on physical signs.

As to the treatment of spasmodic asthma, I have but little to add to what is generally known. It is often serviceable to stupe the whole chest during the fit with flannel wrung out of water as hot as can be borne, and in some persons, much advantage is derived from small but very frequently repeated doses of ipecacuanha wine, mixed with an equal portion of good tincture of castor. In a case of spasmodic asthma which I attended with Sir Philip Crampton, the following draught prescribed by him was found very effectual:—

R. Acidi Hydrocyanici, min. iij.
 Creasoti, min. iij.
 Olei Terebinthinæ, min. x.
 Mucilaginiis, fʒj.
 Aquæ Cinnamomi, fʒi. Misce.

Of this, half was taken for a dose, and repeated if necessary.

With respect to the employment of stramonium in asthma, I may remark that when smoked it acts in some cases almost magically, altogether preventing the access of the fit, while in others it is not only inert, but is often productive of injurious effects; unfortunately, however, we cannot predicate the individual case with which it is likely to agree. One gentleman whom I attended, and who derived much benefit from its use, gave me a practical hint of much value, as to the manner in which it ought to be smoked, namely, that the lungs should be as completely as possible exhausted of air by a forced expiration, before inhaling the smoke of the stramonium, and that

after each inhalation the lungs should be in the same manner completely emptied. This gentleman also remarked to me, that he derived more benefit from the use of stramonium grown in America than from that of home growth.

I shall next proceed to speak of phthisis, a disease of the highest importance, and calculated to excite a very deep interest, whether we view it in relation to the insidious nature of its origin and progress, the selection of its victims, or the number and frequency of its attacks. From calculations founded on the tables of mortality and other data, it has been computed that sixty thousand persons die annually of consumption in Great Britain; but as this computation has not been made with reference to the great increase of population within the last few years, it is probable that the average amount of deaths from tubercular phthisis may, without any exaggeration, be nearly seventy thousand in the year. Nor, if we refer to the returns of the Registrar-General of England for 1847, can we consider that this calculation is overdrawn? There are 117 districts included in his reports, the yearly deaths in which comprise 47·11 per cent. of the deaths in all England and Wales.* In London, in the year 1847, the deaths from all causes were 60,442, and those from consumption 7,010; now the population of London at the last census, in 1841, amounted to 1,948,211, and at present may, in round numbers, be computed at two millions; thus, calculating still in round numbers for convenience sake, a 285th of the inhabitants of London die annually of consumption. The population of Great Britain at the last census was 18,527,351, or, as it may now be estimated, nineteen millions; and supposing the mortality from consumption to be in the same ratio as in London, it would give as a result 66,666. If to these we add 16,000, the average mortality from consumption in Ireland for the five years ending 1840, as given in Mr. Wilde's able and valuable report on the Irish census of 1841, we shall have a total annual mortality from this disease in Great Britain and Ireland of nearly seventy-three thousand.

Phthisis is a disease which, more than any other, demands the sympathy and excites the commiseration of the friends and acquaintances of the sufferers. Some diseases are borne in silence and concealment, because their phenomena are calculated to excite disgust; to others, the result of vicious courses, the stigma of disgrace is attached; unsightly ravages of the human frame, or the wreck of the mental faculties, inspire us with horror rather than with sympathy; but consumption, neither effacing the lines of personal beauty, nor damaging the intellectual functions, tends to exalt the moral habits, and develop the amiable qualities of the patient, and from its melancholy character gives to our feelings of commiseration a more than ordinary intensity. Most persons die of consumption in the bloom of youth, at a period when hopes are brightest, and the capacities for enjoying life are in full vigour and maturity; most of its victims are remarkable for the early unfolding and brilliancy of their mental accomplishments; and many a family has to regret that, by tubercular phthisis, some of the fairest and best of its members have been hurried to an early grave.

* Report for the quarter ending March 31st, 1847. The calculations contained in a note to this lecture in the first edition of this work were taken from a work by Dr. Gilbert on Consumption, and erroneously made on the supposition that the returns included all England and Wales; the mortality from consumption was consequently very much underrated.

I am not, gentlemen, going to treat of the subject of consumption in detail ; I do not intend to enter into a description of its symptoms from their origin to their termination, to exhibit its various phases, or to enumerate the stethoscopic phenomena observed during its progress. To do this would require a very long time, and many lectures ; my purpose is merely to give a general *coup d'œil* of its pathology and treatment. The occurrence and development of tubercles in phthisis, constituting the most remarkable phenomena of the disease, have engrossed, almost exclusively, the attention of medical men, and, consequently, they have attached an undue degree of importance to them as the cause of phthisis.

Here I beg leave to state, that I do not intend to enter into a description of the different forms of tubercle, whether they occur as separate and distinct productions, or in the shape of tubercular infiltration ; this has been treated at large by Laennec, Andral, Louis, and various other writers ; but will only remark that, with regard to tubercles, I am inclined to limit their influence in producing consumption. I grant that tubercles in either state, occurring in very great numbers, or very rapidly developed, will occasion very serious inconvenience and danger, by diminishing the power and extent of the respiratory apparatus. If, instead of a pervious lung, you have one-half of this organ obstructed in its function by tubercle, the injurious effect on respiration is evident. Cases of this kind are of no uncommon occurrence ; I have seen tubercles, to an extraordinary extent, make their appearance in the lung in the space of two or three weeks, and have known persons to die of the suffocation caused by this rapid development without the usual symptoms of phthisis. We had some time ago an instance of this, in a young woman in Sir Patrick Dun's Hospital, who died, in fact, of what may be termed tubercular asphyxia, arising from the rapid and general formation of those morbid productions. She had scarcely any of the common symptoms by which consumption is characterised ; her death was the result not of the suppuration which attends phthisis, but of the suffocation which arose from imperfect respiration ; and this is a distinction which I wish to draw strongly and broadly.

It is, I believe, a generally received opinion, that tubercles, by producing inflammation and suppuration, are the cause of phthisis. This I doubt, or even deny. I look on tubercular development and consumption as the consequences of that particular state of constitution, which occasions what is falsely termed tubercular inflammation, a state of constitution in which we have three distinct processes, attended with corresponding morbid changes, each different in itself, but depending on one common cause.

Every form of consumption which has hitherto come under our notice is referable to one common origin, and this is that debilitated state of constitution which has been termed the scrofulous habit. One of the first tendencies of this habit is to the formation of tissues of an inferior degree of animalization, among which I class tubercles, whether occurring in the lungs, brain, or liver ; whether they exist in a minute or granular form, or in large, soft and yellow masses, or in the state of tubercular infiltration. I look on them as one of the first of those morbid changes depending on a peculiar constitution of body, and most commonly found to accompany it.

The weaker the constitution is, the greater tendency is there to generate tissues of a lower degree of vitality ; and, on this principle, I think we can explain the occurrence of entozoa and hydatids. There are some cases in which you will never be able to prevent the generation of intestinal worms,

until you direct your attention to the source of the evil, which lies in the weakness of the constitution ; for, in such a state of the system, all animals are liable to the formation of parasitic productions and tissues imperfectly animalized. I look on tubercles in this light, and not as the consequence of inflammation, nor do I consider that it has been proved that tubercular development is the cause of phthisis. Many cases come under our observation, in which most of the symptoms of phthisis, and its attendant hectic, are manifest and striking, and, when the injury done to the lung is very great, still no tubercles can be detected.

That the mere presence of tubercular matter does not occasion inflammation of any kind may be inferred not only from the lungs, in which this fact is of every day occurrence, and a matter of every day observation, but also from finding them frequently in the spleen, liver, kidney, and muscles, where they must have existed for some time, and yet we cannot perceive any inflammation of the surrounding tissues. On the other hand, as we may have tubercles without any phthisical pneumonia or suppuration of the lung, so we have the latter without the former. Thus, in a man of middle age, who died lately in this hospital, the lungs were extensively solidified, black, and ulcerated, containing several sinuous cavities, filled with pus of a scrofulous character, but not a single distinct tubercle. There was not the slightest vestige of the chief kind of tubercle—the yellow one, nor could we find any of the small miliary transparent kind ; the whole mass was solid except where it was suppurating, evidently the result of phthisical pneumonia of a chronic nature. Occurrences such as this have been frequently observed, and particularly in the phthisis of persons advanced in life, by Professor Alison and others ; but the preconceived opinion, that the solidification of the lung was the consequence of tubercular deposition, made them overlook its nature.

The most important thing for the student to impress on his mind with regard to all cases of phthisis is, that the pectoral symptoms, of whatsoever nature they may be, are caused by scrofulous inflammation. If you trace the phenomena of external scrofulous abscesses, you will be struck with the close analogy they bear in their manner of appearance, their progress and termination, to the ulcerations of the lungs in phthisis. The same slowness, the same insidious latency, the same gradual solidification and gradual softening, the similarity of the puriform fluid secreted in each, the analogous occurrence of burrowing ulcers and fistulous openings, the close approximation in the form of their parietes, and the difficulty in healing remarked in both, make the resemblance between them extremely striking. Compare scrofulous inflammation of the hip or knee-joint with phthisical suppuration of the lungs :—have we not the same kind of hectic fever, the same flushings and sweats, the same state of urine, the same diarrhoea, the same state of appetite, and the same emaciation ?

I mentioned before that one of the first morbid changes we generally see arising from the scrofulous habit is the formation of tubercular matter. I have also alluded to another of these morbid changes, namely, the production of scrofulous pneumonia, in which we cannot detect the existence of a single tubercle. There is another process in which the scrofulous inflammation is seated in the bronchial mucous membrane. This latter form of phthisis is sometimes associated with phthisical pneumonia, but it often exists without it. Although in this disease the inflammation is seated in the bronchial mucous membrane, it differs very much from common bronchitis ; its symp-

toms are different ; it does not run the same course, and it is unlike common bronchitis in its mode of termination and cure. Its fever presents all the material phenomena of phthisis—emaciation and frequently the same incurability : the same means tend to its aggravation or benefit, and the same serofulous pus is secreted.

It has been urged in opposition to the last analogy that the matter expectorated is not the same, because it is not found mixed with tubercles, as in cases of true phthisis ; but this is an accidental and not a real difference, and does not disprove their identity. We have instances of this species of inflammation affecting other mucous tissues ; as, for example, the serofulous inflammation of the eyelids and conjunctiva, which we see sometimes going on for months, or even years, secreting a serofulous pus, and requiring constitutional as well as local remedies for its cure.

In like manner we have frequent occasion to observe serofulous sore throat, and serofulous inflammation of the mucous membrane of the bowels. The latter is very common in children, and manifests its tendency to hectic, in what is termed the remittent fever of children. Its true serofulous nature has been scarcely perceived by practitioners, and yet its treatment and cure contain manifest proofs of its origin, independently of the subsequent disease of the mesenteric glands observed in all fatal cases, and by all acknowledged to be serofulous. It is serofulous inflammation of the mucous membrane of the bowels which causes *tabes mesenterica*, and which occasions the swelling and puriform contents of the mesenteric glands in such cases.

The disease of the glands has been fairly regarded as the cause of the symptoms : where it occurs it aggravates and adds to them, but it is itself occasioned by irritation of the lymphatics distributed to the surface of the diseased bowel, on the same principle that a bubo or a chain of diseased glands in the groin may be occasioned by inflammation on the surface of the penis or lower extremities ; in the axilla, by sores on the hand, arm, or chest ; and in the neck, by cutaneous eruptions on the face or scalp, or by inflammation of the mucous membrane of the throat. In all such cases, if the original source of irritation at the extremities of the lymphatics leading to the gland be serofulous, these glands will undergo precisely the same changes which we observe in the mesenteric glands in *tabes mesenterica*.

These analogies being considered, you will, gentlemen, be more disposed to agree with me in thinking that many of those cases of chronic bronchitis which induce a fatal hectic fever, and are accompanied by copious purulent expectoration, are truly of a serofulous nature, and consequently not so distinct from tubercular phthisis as is generally believed. This view of the subject leads to most important practical results ; for the practitioner who is aware of the true serofulous nature of the pneumonia which occurs in phthisis, whether with or without tubercles, and who does not regard either the inflammation of the lung or of the bronchial tubes which accompanies tubercles, as genuine simple inflammation caused by the presence and irritation of tubercles acting as foreign bodies,—such a practitioner, I say, aware of the serofulous nature of these affections, will pursue a line of practice very different from that too generally adopted on the supposition that they are true inflammatory affections.

You will remember, then, that we have three distinct forms of disease in the lungs, all arising from serofula, namely, serofulous pneumonia, serofulous bronchitis, and the tubercular development. We may therefore have tubercles without either the pneumonia or the bronchitis ; and we may have

scrofulous pneumonia often ending in slow burrowing suppuration, and proving fatal without any tubercles being formed. In like manner a person may die of scrofulous bronchitis without the occurrence of either tubercles or pneumonia. Of these three effects of scrofula it may be remarked that, owing to their cause and origin being the same, they are most frequently found in combination. The same diathesis which produces one may give rise to the others; hence the frequency of their association; hence it is that they generally occur together.

I have stated, that I doubted or even denied that tubercles were the cause of suppuration of the lung;—you will ask me for proofs. In the first place, how many lungs will you find on dissection filled with tubercles, and yet there is no inflammation? Out of one hundred cases of tuberculated lung dissected by Laennec, you will remark that nearly eighty were found to be in the latent stage, and yet there was no vestige of inflammation. Now, how could this happen if tubercles acted like foreign bodies, as they are considered to do by many writers? If a grain of sand happen to get into the eye, it will excite inflammation. If tubercles were capable of producing inflammation, we should discover some traces of it in every lung where they are found to exist, and yet you will meet many cases in which you cannot detect the slightest trace of it down to the very edge of the tubercular mass. I instanced before the occurrence of tubercles in the liver, spleen, kidney, and muscles, without any accompanying or surrounding inflammation.

Indeed, I am adverse to allow that any animal product gives rise to inflammation: I do not speak here of unorganised calculi: I do not include those animal productions which are transferred to a part different from that in which they originated, as the matter of an hepatic abscess into the cavity of the peritoneum; these are occurrences for which nature is not prepared. But no animal matter produces inflammation of the part in which it is deposited; nor can I call to mind a single instance of such an effect. Extravasation of blood in the brain or lung, or into the areolar tissue, does not give rise to inflammation, neither does effusion of lymph into serous cavities. I look on tubercles in the same point of view, and consider them as productions incapable of developing the phenomena of inflammation.

The inflammation and suppuration of the lung to which the name of phthisis is applied, is dependent on a scrofulous habit, and thus leads us to inquire what it is that gives rise to the scrofulous diathesis. In many cases it is hereditary; persons may be born with it; and tubercles are frequently detected in the lungs of the fetus. We may therefore say, that under some circumstances it is an hereditary disease. But it is not merely hereditary and existing in the fetus in utero, but may be developed at any period of life. It is of great use to study and investigate the causes which produce this disease in the lungs of persons who have lived for years without any manifestation of tubercles, as it furnishes us with a key to understand why persons who have not originally either tubercles or scrofulous bronchitis may sometimes die of phthisis. It is too much the fashion to say that phthisis is an hereditary disease, and it is often useless and erroneous to lay too much stress on this opinion, and on the result of an inquiry into the habits of the parents and relations of a patient who is supposed to labour under consumption. That the predisposition may be generated in utero* I grant is often the case, and, *ceteris paribus*, a person with such a predisposition is much worse off;

* Billiard has detected tubercles in the lungs of the fetus.

but I believe that it often happens that a man will get consumption by confiding too much in the purity of his blood, and I have known some cases of neglected cough terminate in debility and consumption, because the patient was not apprehensive of any danger, from the circumstance that none of his ancestors ever had the slightest taint of phthisis.

There are several facts in proof of this. If a tiger from the wilds of Africa, who can boast of a line of ancestors as free from phthisis as any of us, be brought into this country, and debilitated by confinement, impure air, and a climate to which he is unaccustomed, you will frequently find that he will die phthisical. Negroes, none of whose progenitors laboured under any form of phthisis, will get consumption in Great Britain. The same occurrence takes place with respect to monkeys and other animals, who are naturally inhabitants of a climate having a striking difference in temperature from that into which they are imported. You recollect the dromedary carried about for exhibition, which died in this city, and was dissected at the College of Surgeons: this animal died of consumption. The white bear of the north of Europe, and the Esquimaux dogs, brought into this country, die of liver disease, though I dare say there is no instance of hepatitis among those who dwell in their native wilds. Here we have instances of disease not at all hereditary, acquired from the action of the same cause that favoured its development when hereditary, and tending to justify the opinion that phthisis may, under certain circumstances, occur in a habit in which the slightest predisposition to this disease does not exist.

You will expect me, perhaps, to enter into a disquisition on the origin of tubercles; this, for obvious reasons, I must refuse. Much labour has I think been fruitlessly expended in attempting to systematise this subject. I am persuaded that there is much of error and misconception in the manner in which many persons consider the nature of tubercular formation. I am convinced that many of the propositions laid down as tenable and well-grounded may be subject to revision, or even doubted and denied. It was supposed, for instance, that the yellow solid tubercle, one of the best defined of those which are found in the lung, commences in one form and terminates in another; that in the beginning it is small, solid, and transparent; that as it grows larger it becomes more and more opaque, and afterwards, under the inflammatory process, becomes softened in the centre and suppurates, the suppuration extending towards the circumference. This I was inclined to doubt, and we now find that all recent authorities agree in viewing this variety of tubercle as opaque, and of a dull straw colour from the commencement, and always undergoing the process of softening from the periphery inwards.

When you find, on dissecting a scrofulous lung, tubercles with fluid matter in their centres, I can scarcely think you are authorised in saying they have been at any period of their existence completely solid. Many years ago, while perusing Laennec's descriptions of tubercular formation, I wrote on the margin of the copy I was reading, *Might not tubercles have been originally fluid, and might not the change they undergo be from a soft into a consolidated mass?* I have seen this passage of fluid scrofulous pus into solid tubercular matter beautifully exemplified in a case of psoas abscess; the neighbouring lymphatics were loaded with pus; in the lymphatic glands to which it was next carried it was much thicker; in those at a greater distance it was of the consistence of curd, and when its fluid particles had been still more completely absorbed in more distant glands, it was found to be as solid as any yellow tubercle. May it not happen, that many of those yellow tubercles—

and this is the opinion of Cruveilhier and others who have written on this subject since Laennec, at their commencement consist wholly of depositions of scrofulous pus in the tissue of the lungs?

One of the supposed tendencies of the scrofulous diathesis is to modify nutrition in such a manner that, instead of the ordinary depositions, a secretion of scrofulous pus takes place in circumscribed spots. It has been universally acknowledged that we may have depots of pus without inflammation. Now, if these depots be excessively numerous and very minute, and if they continue for any length of time, they will be exposed to the action of the surrounding absorbents; and as absorption will go on with greater activity at the circumference than at the centre, it is obvious that the solidification of the circumferential parts will precede that of the central, and they will present the appearance of tubercles softened in the centre. These facts I bring forward, not for the purpose of laying down any fixed theory concerning the growth and origin of tubercles; not for the purpose of asserting that the generally received opinion is wrong; but to show you that it has been too hastily adopted, to the exclusion of other explanations drawn from causes probably not less operative in giving rise to these morbid productions.

With regard to the more minute forms of tubercular matter, as the granular and transparent tubercle, and the tubercular infiltration, these I look upon as the effects of vitiated nutrition, a species of parasitic growths of a lower degree of organization, having their origin in an hereditary tendency or in a debilitated state of constitution. These may, and frequently do occur along with the yellow purulent tubercles, and they may have purulent points deposited in their centres, or at the circumference; but it may be doubted whether there is a true conversion or growth of one into the other, or, speaking more precisely, whether grayness, transparency, and minuteness of size in tubercles necessarily precede opacity, yellowness, and considerable bulk. The nearest resemblance which exists between the two kinds is in the case of tubercular infiltration, the gray species being imitated in its mode of diffusion by the purulent infiltration of the yellow kind.

The next subject for consideration is the examination of those causes which, acting on the constitution generally, or locally on the lung, give rise to the development of tubercles, scrofulous pneumonia, or scrofulous inflammation of the mucous membrane of the bronchial tubes. A great deal has been said concerning the badness of our climate, but it is necessary to know the comparative frequency of consumption in Great Britain, in order to ascertain the influence its climate may exercise in producing this disease as compared with that of other climates. If you examine the records of the German, French, Italian, and other continental hospitals, you will find that the occurrence of phthisical cases is not less frequent in these institutions than in the infirmaries of Great Britain. I do not mean to say that in these countries so many persons die in proportion to the extent of the country as in Great Britain, or that so much of the population, taking town and country into consideration, are cut off by phthisis as in Great Britain: but of the town population, where numbers are equal in both, I believe the proportion of victims is nearly the same.

The prevalence of phthisis is found statistically to depend on confinement, poverty, and vice; and as these are most abundant in the condensed population of towns, we can perceive why consumption is so frequent in this kingdom. In consequence of the great manufacturing prosperity of England, no nation in Europe possesses so many considerable towns in proportion to its

entire population or extent. Now, when we compare the frequency of consumption in persons residing in large towns, and those who live in the country, the difference is very great indeed. This is not strange or unaccountable. Compare the peasants of any, even those shires which are believed to have the worst climates, in England, or even Scotland, and you will be at once struck with the contrast between them and the sallow artisans of large towns, who are crowded together in manufactories where ventilation is imperfect ; where they are obliged to work in confined postures for many hours together, and the time devoted to amusement and healthful exercise is scanty and insufficient.

It is scarcely creditable the length of time even very young persons are made to work. From investigations made by a parliamentary committee, it appears that until the last few years, when an act of parliament was passed restricting the hours of labour, every principle of humanity had been violated in some towns of England and Scotland. Children of six years of age used to be crowded together by hundreds in badly ventilated apartments, and obliged to work for seventeen hours in the day ; and when these ill-fed and sickly creatures dropped asleep over their work, as they frequently did, from fatigue, exhaustion, and the curtailment of their natural rest, they were kept awake by strapping them with a leather thong over the back. And can we be surprised that this should make them spiritless, pale and emaciated ; and that they should sink rapidly into that state which tends to scrofulous development ? Is it wonderful that in such creatures every disease of debility should manifest itself in tenfold vigour ; that we should have phthisis in the lungs, and tabes mesenterica in the abdomen, and chronic hydrocephalus in the brain ?

What applies to those of tender age is applicable also to the adult ; the same mode of life is equally destructive to both ; nay it even fixes its stamp on the race, and you can recognise at once the pale, unhealthy hue, and the stunted growth, of those whose progenitors have been manufacturers and artisans for generations. If the population of these countries lived in one great London, or one great Manchester, deprived of the benefit of pure air and wholesome exercise, I verily believe that they would all become scrofulous—that nine-tenths of them would get phthisis, and that scrofula, in its various shapes, would sweep them off in the course of a few centuries. Cholera or plague would be preferable to this.

But no manufacturing town supplies exclusively its own population ; it generally draws from the country to support the losses it sustains by the general decay and excessive mortality of its members. It is the habits and circumstances of those persons who live in towns that produce the frequency of phthisis in Great Britain, for its climate is not more unhealthy than others. I mention this particularly, because a very prejudicial preventive method has been founded on the supposed inflammatory origin of phthisis. Confinement, heat regulated by the thermometer, flannel, low diet, and venesection, have been recommended as the best mode of managing phthisis. Now, if we complete the above catalogue by the liability to cold which it brings on, the mental anxiety, and many other circumstances, we have what in due time would make many persons phthisical. It is of great importance to know how to make a man phthisical, as, by pursuing an opposite line of conduct, we will be able to prevent it.

I have stated that I considered tubercles not as the cause of phthisis, but as the result of a certain diathesis, to which the name of scrofulous habit

had been given ; I should, however, be conveying an erroneous idea of the peculiarities of the disease, if I were to omit mentioning that whatever produces a tendency to the lungs gives rise to phthisical development. You will find in the works of Laennec, that he states that bronchitis never hastens the development of tubercles. I must in the most positive manner deny the truth of this statement. It is a very dangerous thing for a person of a scrofulous habit to get an attack of cold, producing catarrh, or inflammation of the lungs, as it has a direct tendency to bring on tubercular development and suppuration. If persons be weakly, unhealthy, and of a scrofulous constitution, and get cold and inflammation of the lungs, they are more liable to have consumptive suppuration of the congested than of any other portion of the lung ; for the same reason that a simple injury, producing inflammation of the hip or knee joint in a scrofulous habit, may degenerate into true scrofulous ulceration of these parts. Hence common bronchitis in a scrofulous habit may become true scrofulous bronchitis, and common pneumonia may end in the scrofulous consolidation and burrowing ulceration of the lung peculiar to phthisis. And, notwithstanding the assertions of Louis to the contrary—assertions, too, supported by his numerical proofs—my own additional experience since I first promulgated this doctrine serves but to convince me the more strongly of its truth.

I am afraid, gentlemen, that you will think me tedious and guilty of repetition on this subject ; but its importance is paramount, and I wish to impress on you that every form of phthisis is connected with scrofulous inflammation of the lung. Compare scrofulous and long-continued inflammation of the knee or hip-joint and their attending symptoms with the symptoms of phthisis. Have we not the same fever, the same sweats, the same diarrhoea, the same emaciations, the same state of urine and pulse ? Are not all the symptoms which attend these diseases, I mean the general and constitutional symptoms, identical ? Let me observe that there is not one of those cases in which you will not be able to trace the existence of scrofula, and I trust that you will assent to this proposition, that the inflammation of the lungs in phthisis is scrofulous.

You may be inclined to doubt that there is such a thing as scrofulous bronchitis, but let me remind you that there are cases of persons in the decline of life who have long-continued cough, purulent expectoration, emaciation, sweats, hectic fever, and diarrhoea ; and when you dissect one of those persons, you find the mucous membrane of the bronchial tubes red and hypertrophied, and a great quantity of purulent fluid in the lungs, but not the slightest trace of tubercle. You may say, I have made here a good diagnosis ; this person had died of chronic catarrh ; but this is improper ; many of those cases are scrofulous inflammation of the bronchial mucous membrane. You will generally observe that such cases are much more difficult of cure than mere bronchitis ; that the same treatment, the same regimen, the same attention to change of air, and tonic and strengthening diet will not do.

No one dies from an attack of common bronchitis except the very aged, or persons in whom it is very general and very acute ; and here its rapid termination sufficiently distinguishes it from the form I have described ; but we have repeated instances of bronchitis lasting for months without destroying the patient, and capable of being removed by the ordinary means, except when it occurs in a scrofulous diathesis. It is obvious that phthisis may prove fatal by the rapid and extensive development of tubercles, without any of the peculiar phenomena of pneumonia or bronchitis ; yet it most com-

monly happens that owing to their being produced by the same cause, we have the three different forms of scrofulous inflammation in the same phthisical patient, although it is by no means rare to meet with them in a separate and distinct state.

Another way in which inflammation acts as a cause of tubercular development I must not omit stating, namely, by bringing more—generally unhealthy—blood to the lung, and thus encouraging the formation of morbid deposits; and this leads us to the consideration of another question, why are tubercles so common and so copious in the lung more than in any other tissue? I believe there has not been as yet any satisfactory solution of this phenomenon; but it may tend to throw some light on this obscure subject, if we call to mind one of the most striking peculiarities of the lung, namely, that it is the only organ through which the entire mass of the blood circulates. Through other organs a portion only of the blood is transmitted; but the whole current of the circulation passes through the lungs.

It is in the lungs also that the change which the blood undergoes takes place exclusively, and its particles experience that mutation which renders them subservient to the purposes of life. Whatever has been added or subtracted from the blood by the processes of sanguification or secretion is corrected by the operation which it undergoes in the lungs, and hence they stand in relation to the blood differently from other parts. They receive, transmit, and produce changes in the blood differing from those it experiences in any other organ, and this may, perhaps, account in some way for the frequency of tubercles in the lungs. Tubercles are a disease of nutrition, a process which depends intimately on the blood; and it may not seem strange that they should be most frequent and numerous in an organ which has a more intimate connection with the sanguineous circulation than any other.

I have stated that in persons of scrofulous habit, whatever produces congestion in the lung is liable to bring on phthisis, and hence it is that tubercles are found to succeed the different forms of the chest disease in which congestion of the lung is a general feature. It is not that more blood passes through the uninflamed portion, or that it receives more than the sound part. On the contrary, perhaps one hundred times as much blood is transmitted through the healthy part, but the mode in which it passes is very different. It passes rapidly and freely through the uninflamed portion of the lung, and is aerated on its passage; but in the inflamed part the blood is retarded in its progress, and, comparatively speaking, stagnates; it is, as it were, out of the general current of the circulation, *hors de la route*; it becomes diminished both in its velocity and quality, because the unsound and disorganised portion of the lung is unable to effect those vital changes which depend on the perfect state of its functions. Hence, you perceive that whatever increases the stagnation of blood or the engorgement of the lung brings on a state of that fluid in which there is both detention and imperfect aëration, circumstances which are apt to produce not the nutrition of the organ in which they occur, but the formation of morbid depositions, and this appears to be the reason why inflammation and engorgement occasion tubercular development.

With regard to the time of life at which phthisis is found to occur most frequently, Lombard, Alison, Andral, Papavoine, and Louis have corrected some important errors in the opinions previously existing on this subject.

From their investigations, it appears that, from one to two years of age, tubercular consumption is very rare, that its frequency increases from four to five—from four to seven, according to the two latter observers—that it then remains nearly stationary until puberty, when the tendency to tubercular development is suddenly revived. As old age comes on, this tendency diminishes, and tubercular consumption is of a comparatively rare occurrence, but scrofulous inflammation of the lungs is then also not unfrequently noticed. In the consumption of young persons we most commonly meet with tubercles on examination after death, but in old people tubercles are seldom found; and in dissections of those who die of phthisis at an advanced age, we generally observe ulcerations, abscesses, fistulous communications, and consolidation of various parts, with quantities of scrofulous pus. Such was the case of of the man who died here some time since, in whom the ravages committed by scrofulous ulceration were very extensive, but there was not a vestige of tubercle. This form of phthisis is also frequently noticed in persons of middle age, who have lived intemperately and weakened the system by dissolute courses.

Before leaving this part of the subject, I wish to make some additional observations on the phthisical habit, and the circumstances which increase the liability to consumption. There are many circumstances which tend to the development of phthisis, through the medium of their influence on the constitution. In the first place, persons who have had debilitating and protracted fevers, particularly if there be any affection of the lungs, are very apt to fall into what has been termed a galloping consumption after the subsidence of the fever. In the next place, you will often find symptoms of phthisis coming on in females of a weakly habit when they attempt to nurse. In many females of delicate constitution, you are aware that the progress of consumption is checked by utero-gestation; as soon as the female becomes pregnant, the phthisical symptoms disappear; but when she begins to nurse, they return again in an aggravated form. When such persons begin to nurse, you should watch the effect of this new drain on the constitution; you should observe whether their strength diminishes; and if you find them becoming pale, thin, and emaciated, you should make them give up nursing, particularly if there be a tendency to phthisis in their habits.

Among the male sex, nothing more frequently produces phthisis than syphilis and the abuse of mercury. There is no receipt more infallible than this for producing consumption. Take a young man, even with an excellent constitution, who is labouring under syphilis, shut him up in a close room, dose him with mercury, put him on low diet, and prevent him from the enjoyment of fresh air, wholesome exercise, and enlivening conversation, and you will certainly make him phthisical, if this process be often repeated. Other diseases, such as diabetes, cancer, diarrhoea, insanity, hypochondriasis, and hysteria have also a tendency to bring on consumption.

If you consult Laennec, you will find enumerated among its causes, mental anxiety, depression of spirits, and several diseases which frequently lay the foundation for phthisis. In speaking of some of the religious orders in France, particularly those to which females are attached, he says that it is to be lamented that they were so unreasonable in their mode of life; for the confinement, and want of recreation and exercise, which attend their mode of living, concurring with their rigid abstinence, produce consumption in a few years. You should bear those circumstances in mind, and remember that there are various causes which tend to the development of phthisis,

among which you are not to forget those which operate on the system through the medium of the mind.

Analogous to this is that ill-judged pursuit of knowledge which we often, with regret, observe to cut short the earthly career of the industrious medical student. No matter how vigorous a young gentleman may be, he will make himself consumptive in two or three years if he chooses. Let him remain constantly in the dissecting-room, or in attendance on lectures, keep his mind intensely and anxiously engaged, let him snatch a hurried meal for which he has no appetite, take no exercise, and abridge his natural portion of sleep, he will quickly bring on that state of constitution in which the consumptive tendency so commonly appears. By pursuing this course of life many young men fall victims to phthisis at an early age, and give melancholy proofs of the power of a combination of mental and physical causes in producing this disease.

LECTURE XLV.

PHTHISIS.—PREVENTION.—TREATMENT.—LARYNGEAL PHTHISIS.

IN my last letter I spoke of phthisis as regards the great mortality it occasions, of my views as to the nature of tubercle, and of the causes by which it is produced. I shall proceed now to offer some observations on the treatment of the disease.

You will, probably, ask me first what is to be done in order to avert the phthisical tendency. It was formerly thought that consumption arose from inflammation of the lung, and on this erroneous reasoning was founded its preventive treatment; the patient was confined to his room, and kept in an equable temperature, wrapped up in flannel. I well remember this mode. If a family lost one of its members by consumption, these were the means employed to avert its occurrence in those who remained. This absurd plan was followed with rigorous exactness, and the constitutions of the survivors were so debilitated thereby, that they became similarly affected, and in time the whole were swept away.

All these precautionary measures generally tend to the same purpose, to make the constitution delicate, and consequently more liable to the inroads of phthisis. A rational physician will endeavour to prevent its occurrence, not by confining his patient, and wrapping him in flannel, but by hardening him against cold. Anyone who wraps himself up and confines himself within doors, takes cold in tenfold proportion to the person who dispenses with superfluous covering, washes his chest with cold water, and rises early in the morning. Habits such as these, with a good, nutritious, but not stimulating diet, and exercise, are the best preventives of phthisis.

Make your patient lay aside slops and tea; let him take wholesome fresh meat, bread, and good beer; let him rise early and breakfast early, let him dine also early; when the weather permits, let him remain in the open air for four or five hours, taking exercise on a jaunting car, or on the top of a coach. The good diet will invigorate the system, and, so far from producing inflammation, will do exactly the contrary. No superfluous muffling should be used, nor would I recommend young gentlemen who wish to avoid cold, to come to hospital in the morning with a boa round their necks. Exercise should also be taken on an open vehicle, close carriages avoided, and the patient should commence cautiously the plan recommended by Dr. Stewart of Glasgow, of washing the chest with vinegar and water, beginning with it warm, and reducing the temperature gradually until it can be used completely cold.

You will have great success in preventing phthisis by following this plan. In all cases, also, where phthisis is hereditary, I would strongly recommend the insertion of issues or setons in the chest before or after puberty, and I am of opinion that if you happen to have an application made to you for advice before the disease commences, you will certainly avert its occurrence by this practice. You should, however, employ this mode of treatment with

due consideration ; issues and setons are very unpleasant things, and you should not make your mode of prevention more powerful than necessary. The only cases in which you are authorised to have recourse to them, *as preventives*, are those in which there is a family predisposition to phthisis.

I look on issues and setons as one of the most important means in the prevention, if not in the treatment of phthisis. Their utility in diseases of the hip-joint and spine has been long acknowledged. It is the knowledge of this fact which induces me to recommend them in phthisical cases; I consider their value very great ; and when I employ them, I generally recommend a nutritious diet, which is of advantage where there is an outlet for matter from the system. I never treat a case of decidedly incipient phthisis without inserting at least two setons under the collar-bones. The following observation, made by an intelligent medical friend, is deserving of attention :—"I had inserted a seton over the left mamma, where bronchial rales, diminished respiration, and commencing crepitus indicated advancing tubercular inflammation. The stethoscopic phenomena were much increased every time he caught cold in his chest, and he felt sensibly, by the wheezing and uneasiness in that part of his chest, that whenever he caught cold, the lung there was most engaged. The effects of the setons were such that, in the course of three months, having contracted a severe cold, that part of the lung was comparatively free from the bronchitis." For the accuracy of this fact I can vouch.

Concerning the climate to which we may find it necessary to recommend a patient to remove, either for the preservation or alleviation of phthisis, I shall now offer a few remarks. When you enjoin a change of climate, and make persons leave the country in which they have lived from infancy, you should not send them to the same, or nearly the same, climate ; the change should be a completely opposite one. Italy, the south of France, or Madeira, are not sufficiently different. It is absurd, in my mind, to send a patient from the British islands to any part of the continent of Europe. Towns on the sea-coast of any part of it will not do ; I would prefer the East or West Indies, South Carolina, or Florida, the northern states of South America, or Egypt. Many improvements in the social condition of the last-named country tend to render it a desirable place of residence ; and if the present enlightened Pacha continue to promote the advantages which it has gained, it will become as agreeable a place of residence as any person can desire. Moreover, Clot Bey has confirmed the statement of Savary, that in Egypt pulmonary diseases are almost entirely unknown.

A singular fact has been recently noticed as to the antagonism which appears to exist between ague and phthisis. From the investigations of Boudin, Triber, Wolheim, Wœmer, and others, it would appear that consumption is almost unknown in what may be termed aguish districts ; and, on the other hand, that in those parts of a country in which phthisis prevails, cases of ague are not met with. If further observations confirm these statements, we should, of course, take them into account in selecting a climate as a place of residence for the consumptive invalid.

I come now to speak of the treatment of phthisis itself, and shall make but very few observations on this subject, for you will find the history of its general symptoms, stethoscopic phenomena, and method of treatment, amply detailed in books. With regard to the cough, I may remark, that in the first stages of this disease it presents great varieties, being generally in the commencement baffling, and consequently scarcely noticed either by the patient or his friends. In some it precedes, in others it follows, a notable degree of

emaciation and debility ; and it is worthy of notice, that it is not unusual for the patient to complain of increased perspirations at night, long before the pulse is at all accelerated, long before the symptoms of hectic fever have commenced. These night-sweats are, at this period of the disease, the result of that debility to whose presence the subsequent development of phthisis is mainly owing.

At a subsequent period, the sweats are increased by the hectic fever, whose paroxysms end in cutaneous perspiration. Still, however, the original debility aids in their production, a fact which, in the treatment of this disease, should be borne in mind, for it may be considered as always proper to check this tendency to perspiration in phthisis, particularly in its commencement, for it uselessly debilitates the patient, and renders him much more liable to cold. Hence, when a patient applies to me, complaining of some debility, and a slight degree of emaciation, and fading of healthy appearance ; if he has had a slight but by no means troublesome cough for several weeks—a cough, indeed, which he scarcely observes himself, but which excites the fear of some anxious friend ; if, in addition to this, he sweats rather more than usual at night, then, although his pulse is quite tranquil, although there exists no trace of hectic fever, yet I immediately direct my treatment with a view of checking this tendency to night perspirations, as well as the other more prominent symptoms.

To such persons I generally recommend some such draught as the following, to be taken three times a day :

R. Infusi Cascarillæ, f3vij ;
Sulphatis Quinæ, gr. ss ;
Acidi Sulphurici diluti, gt.xv. ;
Tincturæ Hyoseyami, f3ss. Misce, fiat haustus.

These draughts, together with constant gestation in the open air for an hour and a half at a time, and several times a day, with nutritious diet—meat, bread, and beer for breakfast, meat for luncheon, and a dinner, with one or two glasses of wine, and no tea in the evening, will soon check the perspirations, diminish the cough, and rapidly recal the patient's strength and vigour. Many German physicians have an aphorism, that sulphuric acid tends to increase pectoral affections. So it occasionally does ; but given combined with hyoseyamus, as above recommended, its beneficial action in giving strength and tone to the constitution soon enables the patient to shake off the cough.

In the month of January last, I recommended this prescription and general treatment to the eldest son of a gentleman of rank. His state was exactly what I have above described, and several of his mother's family had died of consumption. In a few days his mother-in-law called at my house, and in the course of our conversation it became clear that she entertained very strong prejudices against the treatment I had recommended. Such persons, gentlemen, are all well acquainted with sulphate of quina ; ladies of fashion use it constantly to wind themselves up, when reduced to a little below par by dissipation and late hours. What use could sulphate of quina be to a cough ? Might he not catch fresh cold from driving out at this season ? Would not the meat diet tend to increase the pectoral affection ?

Luckily for me, this lady lived at the time in a country house, the nearest place to which had, many years ago, been the residence of one of our richest merchants, a gentleman with a very numerous family, eleven of whom had died of consumption. My answer to the lady was, therefore, obvious. I

replied, to prevent consumption, or to remove its first stages in that family, the most eminent physicians recommended a certain regimen and mode of treatment. They were anxiously confined within doors during winter, kept wrapt up in flannel in rooms maintained at a *Madeira* temperature, were not allowed animal food, and were bled to the amount of a few ounces at each accession of fresh cold. You, yourself, know the result, madam:—they all fell victims to the complaint, and appeared to drop more rapidly in consequence of the treatment. I am pursuing, in the case of your son-in-law, an opposite course. She was satisfied, and the young man is now strong and healthy.

In spring, 1832, I was consulted by a young barrister who was affected in nearly the same manner, but, in addition, had a hoarseness and much more violent cough, and was more emaciated. The same regimen, the same medicines, the solution of nitrate of silver applied to the tonsils and pharynx, early hours, removal to Bray, and driving through the open air twenty miles a-day, restored him to health. Being now aware of what injures him, he avoids everything debilitating, never neglects exercise, and is now strong and able to pursue his professional avocations. Again let me repeat it, that if the disease be at all more advanced than it was in these two cases, I immediately insert one or two setons over the most suspected part of the lungs. When the preparations of hyoscyamus are well made and good, they are extremely useful, and, like digitalis, exert a retarding influence over the pulse when it is accelerated.

When the pectoral symptoms are accompanied by evident fever and a quick pulse, I generally combine these two substances, as in the following formula :

R Sulphatis Quinæ, gr. iss ;
 Acidi Sulphurici diluti, fʒj ;
 Tincturæ Hyoscyami, fʒj ;
 Syrupi Papaveris albi, fʒss ;
 Aquæ fontanæ, fʒiv ;

Fiat mistura, sumat cochleare unum amplum secundâ quâque horâ.

As the disease advances, the difficulty of producing a favourable result increases in tenfold proportion ; and I can offer but few remarks upon its treatment or mitigation, which you will not find detailed in the various treatises on this disease lately published. I must, however, call your attention to a plan which I have adopted within the last six or seven years, in the treatment of certain diseases of the lungs, and on which I shall make a few observations, as it has not been spoken of by those who treat of the cure of pulmonary affections. I must here in justice confess that the idea of this plan of treatment is not solely mine, but was founded on an analogy derived from the researches and experiments of Dr. O'Beirne on scrofulous inflammation of the joints. An extensive experience and deep reflection first led Dr. O'Beirne to think that the acute stage of scrofulous inflammation of the hip and knee-joint might be made amenable to active and energetic treatment ; in other words, that inflammatory affections of the joints, which terminate in some of the worst and most fatal forms of disease, namely, morbus coxæ and white swelling, might be checked *in limine*, and before the stage of hopeless ulceration was established. He, therefore, proceeded boldly and at once, to try whether the disease might not be arrested in the commencement by rapid mercurialization.

Observe, gentlemen, this idea was completely new ; it had never occurred

to any other person, and was diametrically opposed to the theories of the day. The prevailing opinion on this subject was that mercury was inadmissible, and could only produce mischief in persons of a scrofulous diathesis.

Every one said, do not give mercury in such a case, it exacerbates scrofula, it even brings on scrofula in many instances where there had been no appearance of it previously; you can do no good with it, and may do infinite mischief. Dr. O'Beirne, however, knew the difference between the proper and improper exhibition of mercury—between mercurializing the patient at once and fully, and then stopping, and the pernicious custom of giving long and irregular courses of mercury. He tried the remedy and succeeded, and the surgeons of Europe have justly appreciated the value and importance of his discovery. About two or three months before Dr. O'Beirne made his discovery public, I had translated for the *Dublin Medical Journal* a paper from a German author on the use of corrosive sublimate in baths, in the treatment of white swelling, and Dr. O'Beirne states that the publication of this paper gave him courage at the time in pursuing a plan of treatment so much at variance with the opinions of the day. I published this paper, however, at the time merely as a curiosity; it was a novelty in practice of which I had no experience, and could not offer any explanation. This was reserved for Dr. O'Beirne. He has shown in his memoir on the subject, that if you give mercury so as to affect the system rapidly, you will frequently succeed in curing the disease, particularly in the commencement.

From this I was led by analogy to apply the same principle of treatment to incipient scrofulous inflammation of the lung, and I think I have often succeeded in checking at once this most formidable of human maladies. Phthisis, as every medical man knows, is capable of assuming a variety of forms, and presents at its origin much difference of aspect. In some it arises slowly and insidiously, and the pulmonary symptoms are so quietly and gradually developed that it would puzzle an intelligent practitioner, who had most ample opportunities of observing his patient from the beginning, to say at what particular period distinct evidence of danger had been noticed. The reason of this is because the tubercular affection of the lung is in such patients only of secondary importance, the disease which produced it having affected the whole system before the lung was contaminated.

This happens in some, but in others an opposite train of phenomena is observed, and scrofulous inflammation commences in the lung before any general contamination of the system has taken place. It is in such cases, and such only, that mercury ought to be tried, and it will avail nothing except where the commencement of the scrofulous inflammation of the lung has arisen suddenly, and in consequence of the operation of some obvious cause, as catching cold or the occurrence of hæmoptysis. I think that too much stress has been laid on the affection of the lung by writers on phthisis. In some cases (I will admit even in the majority of instances) the disease commences in the lung, but in others it passes through many changes, and affects various organs before it attacks the lung. You will frequently see persons labouring under scrofulous irritation, accompanied by hectic, emaciation, loss of appetite, and excitement of pulse, long before you can find any trace of tubercular deposition in the lung. I am of opinion that many persons would die of phthisis even supposing they had no such organ as the lung.

But let us suppose the case of a person of scrofulous habit who gets an attack of fever, with local inflammation, and that this inflammation fastens on the lung. Take for instance the following case: a young man of robust

and vigorous rame, but evidently of scrofulous habit, who has laboured repeatedly under scrofulous ophthalmia in his infancy, and who has lost several members of his family by consumption, gets, we will suppose, a severe cold by overheating himself in walking into Dublin from the country on a damp evening. He is attacked next day with feverish symptoms and severe catarrh, which soon becomes a formidable bronchitis; but the young man being of a vigorous habit and fond of company, continues to go out and expose himself to the night air, until at length the catarrhal fever is changed into hectic, the bronchitic into organic disease of the lungs, tubercles become developed, and the disease passes into phthisis. Here, you perceive, a man gets an ordinary cold which becomes a bronchitis; he neglects this, and it passes into disease of the pulmonary tissue and tubercular ulceration.

Now this is a very common course of diseased action in persons of a scrofulous habit, and I have in many such cases been able to trace the fatal malady to a common cold exacerbated by neglect and bad treatment. You perceive I do not use the ordinary nomenclature of writers on consumption; I do not recognise the terms "tubercular inflammation," as connected with cases of this description; indeed, I am inclined to think that the whole theory of inflammation being excited in the lung by the presence of tubercles is founded on erroneous views. I have repeatedly found tubercles in the lungs of persons who died of other diseases, without any trace of inflammation around them, and I believe every pathologist will confirm this statement. From this and other reasons I have been led to the conclusion that tubercles do not act in all cases as foreign bodies, and that the theory which attributes the origin of inflammation to their presence is wrong. In my last lecture I have brought forward numerous arguments to show that we are in possession of a much truer and more intelligible pathological explanation of the fact in question.

You may have scrofulous inflammation of the bronchial mucous membrane, or you may have scrofulous inflammation of the lung singly or combined, or, what is most frequently the case, you may have either or both accompanied by tubercular development. The development of tubercles, however, in a case of scrofulous bronchitis or scrofulous pneumonia, is a coincidence and not a cause; and you may have either of these affections singly or combined, without any coexistent or preceding tubercular development. Most commonly scrofulous bronchitis and scrofulous pneumonia are conjoined; the former seldom exists for any length of time without producing the latter, and the latter is usually attended with more or less derangement of the bronchial mucous membrane.

But what I chiefly wish to direct your attention to on the present occasion (and it is a matter of the deepest importance) is, can we prevent the development of phthisis in a person of scrofulous habit who has caught cold, got a dangerous attack of bronchitis or pneumonia, and is threatened with hectic? I do not wish to enter again into any disquisition concerning the means to be adopted with the view of preventing tubercular depositions, or producing absorption when tubercular matter has been deposited in the tissue of the lung. To prevent tubercular depositions you must cure the scrofulous diathesis if you can.

But suppose you are called to a case of the kind I have already described, where a young man of scrofulous diathesis gets a bad bronchitis or pneumonia, exacerbates it by neglect, and is threatened with hectic, what is the best plan you can pursue? My impression is, that you should treat it as

you would treat acute serofulous inflammation of the knee or hip-joint ; in other words, that you should mercurialize your patient rapidly and at once ; do it suddenly and decidedly, but without pushing the mercury too far, and you will often arrest all the symptoms of the disease, as it were by a charm.

I could mention many cases which have been treated successfully in this way. I was very much struck by the case of two eminent medical practitioners who came to Dublin some years since, to place themselves under the care of Dr. Stokes and myself. One was a person of serofulous habit, who had caught cold after taking mercury, and neglected it for three weeks. At the time we saw him he laboured under severe and harassing cough, considerable fever and emaciation, and was greatly alarmed about his condition. He had been several times leeches over the trachea by Dr. Stokes ; but this, although an admirable remedy in many cases of bronchitis, failed in producing an amelioration of his symptoms, and from the persistence of his feverishness, emaciations, and harassing cough, serious apprehensions were entertained that his disease would terminate in phthisis. Having explained to our patient our views of the case, and our impression that mercury was the only remedy on which we could rely with any hopes of success, we ordered him to confine himself to his room, continue the application of leeches to the trachea, and take mercury.

Now, as this gentleman had come up to town under the impression that he was consumptive, we found some difficulty in persuading him to submit to this mode of treatment. He yielded, however, but with great reluctance. In the space of a week all his bad symptoms had nearly disappeared. As soon as he came under the influence of mercury, the cough became notably diminished, and he recovered flesh and strength with surprising rapidity.

The other was a physician from the north of Ireland, who was suddenly attacked by pulmonary apoplexy, and in a few weeks came to Dublin, harassed by a constant dry cough, which prevented sleep at night, and he was visibly emaciated and anxious. In him no hereditary tendency to phthisis could be ascertained, but nevertheless Sir Henry Marsh, Dr. Stokes, and I considered the case as very unpromising ; for although there was no acceleration of the pulse, the breathing was easily disturbed, and we could detect crepitus and some dulness above the right mamma, where it was evident the original seat of the hemorrhage had been. This case, too, which had resisted a mere antiphlogistic treatment, yielded in a most satisfactory manner to mercury.

Bearing these facts in mind, I think, gentlemen, you will be prepared to admit that mercury is a most valuable remedy in the treatment of serofulous bronchitis and serofulous pneumonia—diseases which too often resist the ordinary modes of treatment, and which are unfortunately so often followed by fatal disease of the lung. Where a sudden attack of cold has produced inflammation of the substance or lining membrane of the lung in a person of serofulous habit—where the attack is recent, and has occurred under circumstances which preclude any suspicion of previous tubercular disease—in such a case as this you will find mercury a most admirable remedy in checking symptoms often not amenable to other plans of treatment, and which if neglected or maltreated would in all probability end in phthisis.

I was led to the adoption of this plan, as I before observed, by the success which has attended Dr. O'Beirne's practice in acute serofulous inflammation of the joints, and from observing that cases of unmanageable chronic bronchitis had been occasionally cured perfectly where mercury had been exhibited for

other affections ; and it is a curious fact that about the time I had fallen upon this mode of treatment, it suggested itself likewise to the minds of Dr. Stokes and Sir Henry Marsh, who can testify to its utility ; of course it will not succeed in all cases ; and I have seen it fail in others where I had confidently expected benefit. Notwithstanding this, it is a most valuable addition to our resources in certain cases that would end in phthisis.

About a year ago I attended a young gentleman, apparently of robust constitution, who died of phthisis ushered in by a frequently recurring hemoptysis. Shortly after his death, I was called on to visit the elder brother of my former patient. He had a constant hard, dry, and very distressing cough, which deprived him of sleep, and having continued many weeks had produced a most formidable degree of emaciation. Consumption was naturally dreaded. His pulse, however, was normal, and the stethoscope did not indicate any pulmonary lesion ; still, as the case had refused to yield to all the ordinary remedies, including change of air, we felt very apprehensive as to the result. I confined him to bed, applied leeches over the trachea several times, and rapidly mercurialized him, and with complete success. He has continued well ever since.

I have employed this mercurial plan of treatment in numerous cases of incipient phthisis, and I still continue to use it in this class of cases with the greatest success. It has also been adopted by others, amongst whom Dr. Munk must rank foremost, for the great attention he has paid to the action of this remedy in the disease in question. This gentleman's communication first appeared in the *London Medical Gazette*, from which it was transferred to the pages of the *Dublin Medical Journal*, for March and May, 1841, and I would strongly recommend it to your careful perusal.

Let me now impress on you strongly the necessity of never abandoning cases of consumption as hopeless ; for I have known several apparently desperate cases cured, even when puriform matter had been expectorated, and cavities existed. Many remarkable cases of phthisis have occurred in my own practice, and the practice of Dr. Stokes, and in which the patients recovered either temporarily or permanently in a manner quite unforeseen and unexpected. In some, recovery took place after the occurrence of abundant tubercular deposition and crepitus, and in others, after the formation of tubercular cavities.

When the disease was produced by the operation of accidental causes in constitutions apparently sound, the recovery was not so surprising ; but we have witnessed recoveries in many of a phthisical constitution, and several members of whose families had previously fallen victims to consumption.

Facts such as these ought to prevent the practitioner from placing too great reliance upon stethoscopic examinations, as a positive means of prognosis ; for it may be looked upon as established, that phthisis, like most other diseases, *does not always necessarily progress to a fatal termination*. With this exception, I fully concur in the opinion of the editor of the *Medical Gazette*, who expresses himself in the following manner :—

“It accords, we are bold to say, with the experience of every practitioner who has watched even a few cases of phthisis to their termination, when we remark that the march of the disease, its disposition to assume a slow or a rapid course to its fatal issue, can never be predicted from the most precise acquaintance with the structural changes that have occurred. And what is still more important to notice, the constitutional effects do not bear any intelligible relation, in severity, to the amount of destruction of the organ in

which the disease is situated. These facts show impressively, without stating any others, how much requires to be ascertained, independently of measuring out, with nice accuracy, the extent of morbid changes in the particular viscus considered as the seat of the disease, before we can have any correct notion of the nature of the agent, whose destroying, and, at present, irresistible influence we vainly endeavour to combat in our practice."

In my last lecture I stated that the premonitory cough of phthisis is generally trifling, and scarcely attracts the notice of the patient himself. This, however, is not always the case. Thus, the lamented Mr. Wolfe, the author of the celebrated stanzas on the death of General Moore, had, for a year before emaciation and hectic commenced, a frequently repeated, single cough, exceedingly loud, ringing, and metallic—in fact, a *tussis firma*: during this time his pulse was natural and his breathing tranquil. Nothing that the ingenuity of Dr. Cheyne could suggest was of the least service in allaying the violence of the cough: nothing softened it, until it passed into the usual cough of true consumption, and then we too truly anticipated the loss Mr. Wolfe's friends must prepare themselves to sustain.

I have seen a *tussis firma*, such as I have described, perfectly dry, uninterrupted during sleep and very harassing, in young ladies shortly after the age of puberty, and in whom the menstrual evacuation was scanty and irregular. In such cases the stethoscope discovers no disease; a full breath can be drawn; and during sleep the respiration is not hurried. The tonic treatment consisting of large doses of carbonate of iron; the occasional exhibition of oil of turpentine, repeated for several days so as to act on the bowels, and given in as large quantities as can be borne;—these medicines, I say, combined with active exercise, the occasional use of aloetic purgatives, and finally the exhibition of tincture of cantharides, compound tincture of bark, and camphorated tincture of opium, according to the following formula, will succeed in curing the disease:

R Tincturæ Cinchonæ compositæ, fʒv;
Tincturæ Cantharidis;
Tincturæ Opii Camphoratæ, ana, fʒss; Misce, fiat
mistura.

Of this mixture, two drachms may be taken three times a-day, and gradually increased to half an ounce, in linseed tea or barley water. I was the first to propose this mode of treating this species of cough; it suggested itself to me after all the usual remedies had failed.

I wish you to bear in mind, gentlemen, that phthisis is sometimes latent, not alone from the fact of its being often unrecognizable by physical signs, but also from its occasionally not presenting a *single symptom* belonging to the disease up to the very moment of death. Of this the following case, to which I before referred when speaking of epilepsy, is a good example:—A young lad, shortly after having eaten a great number of pears, drank a considerable quantity of buttermilk, and fell in a state of insensibility: he was visited by a physician of eminence, who thought it advisable to open the temporal artery. About seven hours after the attack a hard tumour was felt in the epigastrium, which gave rise to the suspicion of the presence of undigested substance in the stomach. Purgatives were given with a favourable result, the tumour subsided, and the boy recovered his senses.

The fit, however, returned, and after some time he became subject to regular attacks of epilepsy, which became of more frequent occurrence every successive year, but six years elapsed before his intellect was at all impaired: he

then became first dull and stupid, then idiotic, with occasional glimpses of reason on subjects connected with religion. The fits were preceded by an aura, and followed by coma. Twice a year the disease was subject to most violent exacerbations, the fits recurring as often as ten times a day, and being followed by outrageous madness, which was generally a sign of the subsidence of the fits. When the mania subsided he relapsed into his ordinary state, and had few and comparatively slight fits, but after each of the violent paroxysms he had epistaxis. His respiration was regular, and he had no symptom of pulmonary disease. During the last four or five years of his life the fits were less frequent, and he was free from mania: in 1833 he had an attack of jaundice. His death seemed to be caused by a severe diarrhoea, which set in two months before the fatal termination.

Upon examination, the brain and spinal cord, with their membranes, were found healthy, with the exception of a very slight effusion beneath the arachnoid; the cause of the diarrhoea was found in an extensive ulceration of the ileum. On opening the cavity of the chest, the left lung was found to be one solid mass of tubercles, and the superior third of the right was in the same condition; there were also several small cavities; the gall bladder was exceedingly small, contracted, and filled with calculi. Now the most remarkable feature in this case was, that the patient had never any affection of the respiration, cough, or any other symptom from which the existence of pulmonary disease could have been suspected.

The next case to which I shall call your attention is an example of latent ulceration of the bowels in phthisis; it enables me to bring before you the morbid appearances in a far advanced case of tubercular consumption. It is that of M. Murphy, who died on Saturday last. This man, aged sixty, was admitted on the first of November. He had been ill for nine months before his admission, and stated that his illness originated in exposure to cold. It commenced with cough, oppression of chest, dyspnoea, and hemoptysis. During the first month, the hemoptysis recurred frequently, and, as he thought, generally with more or less relief; but during the latter period of his illness it was entirely absent.

On his admission, he had well marked hectic fever, with copious puriform expectoration, and appeared very much emaciated. The right clavicle sounded pretty clear, but under the left clavicle there was well marked dulness, with a full mucous rale approaching to gargouillement and pectoriloquy. The two latter symptoms became much more decided in about a week after his admission, and I accordingly marked on his card "Phthisis Senilis." The only other circumstance connected with the history of his case which deserves attention was, that he laboured under constant costiveness, which continued up to the period of his death, his bowels never yielding except when he used purgative medicines.

It is unnecessary for me to enter into a detail of the remedies employed to alleviate his symptoms—the only duty which remained for the physician under such circumstances; I shall therefore content myself with noticing the phenomena observed on dissection, with one or two particulars which seem to demand a brief observation. You will recollect that this man exhibited for several weeks before his death unequivocal signs of a large cavity in the left lung, and that latterly the right lung also had become dull on percussion, and that the stethoscopic phenomena indicated the formation of a new cavity at its upper portion.

Here are the lungs ; the left, you perceive, is larger than the right, and exhibits a marked depression at its upper portion, where the phthisical cavity is situated. You perceive also that the pleura investing it is very much thickened, and very rough on its surface ; this appearance was in consequence of its intimate and universal adhesion to the corresponding pleura costalis, from which it was separated with considerable difficulty. You perceive that the right lung is rather smaller than the left ; the left being rendered more extensively solid by disease, has become incapable of collapsing after death to the same extent. We shall now make a section of the lung to show the extent of the cavity. Here is the cavity ; you perceive that it is nearly large enough to contain a small orange, and that its walls are lined with a firm semi-cartilaginous membrane. At the upper and internal part there is a small opening which seems to be the commencement of a fistulous passage, a very common occurrence in cases of phthisis senilis ; I shall introduce a probe and lay it open. Here is the track of this fistulous opening, and you perceive it terminates in one of the large ramifications of the left bronchus. You may perceive also that the section I have made displays masses of small granular tubercles in the upper and anterior portion of the lung, quite different in size and appearance from the large tubercles seen in the child and adult.

I shall now make a section of the right lung. It is much more natural in its feel and appearance than the left, but still in all chronic cases of phthisis we seldom have the disease limited to a single lung. Here you perceive, are a few patches of granular tubercles, looking as if they were infiltrated into the substance of the lung, and not surrounded as the large tubercles of the adult and child are by vascular condensed pulmonary tissue. Here, you see, I have cut into a small cavity ; from its contents and appearance you can judge that it is of comparatively recent formation ; it has no semi-cartilaginous lining, and is of very inconsiderable size. You perceive also that it communicates freely with a pretty large sized bronchial tube, and contains a quantity of muco-purulent secretion.

With respect to the state of the viscera of the abdomen, I may observe that, with the exception of some portions of the intestinal tube, which I am about to show you, they presented nothing remarkable. The liver and kidneys were found to be of the natural size, somewhat indurated and very friable, and the spleen exhibited several small tubercular spots on its surface. Here are the stomach and duodenum, which you perceive retain their normal appearance ; and the same remark is to be made of the colon and rectum. In the cœcum, however, which you see here, and here also in the ileum, there are several ulcerated patches of an oval form, and corresponding to the situation of the glands of Peyer. In some places you perceive the ulcers have destroyed not only the mucous membrane, but also the muscular coat of the intestine, and have very nearly produced perforation.

A most important inference may be drawn from this fact. Here we have several ulcers destroying the mucous coat of the intestine, and eating their way through its muscular tissue, so that the only barrier left to prevent an effusion of the intestinal contents into the cavity of peritoneum, is a thin layer of serous membrane. Yet, during the whole time he remained in the hospital, his bowels were so obstinately costive, that we were obliged to give him purgative medicine every second or third day, to procure an evacuation. You will suppose, *a priori*, that a man, in whom ulcerations of the bowels existed, would suffer considerably from pain, griping and tympanitis, and

that he would labour under the diarrhoea so frequently observed in the advanced state of phthisis.

Our predecessors entertained a notion that the diarrhoea of phthisis is a species of internal sweating ; they observed that when the patient ceased perspiring from the skin, he was generally attacked with a watery diarrhoea, and hence they termed the diarrhoea, *colliquative*. Afterwards it was found, on numerous examinations, that where this diarrhoea had existed, there was, in most cases, ulceration of the bowels ; hence pathologists began to believe that this ulceration had a great deal to do with the intestinal symptoms observed towards the termination of phthisis, referring to it the abdominal pain and tenderness, the unmanageable character of the diarrhoea, and the aggravation of the hectic symptoms.

Now, it strikes me that this mode of accounting for these symptoms was, perhaps, too hastily adopted. No doubt ulceration of the bowels may produce all the symptoms detailed ; but, on the other hand, it may exist to a very remarkable extent, and yet produce no symptoms by which it could be recognised. Here was a patient who never had the slightest tendency to diarrhoea, who never complained of pain, griping, flatulence, or abdominal tenderness ; on the contrary, his bowels were not merely slow, but even confirmedly costive, and he always felt more or less relief from the use of purgative medicine. None of us ever suspected that anything like ulceration existed ; we gave him a full dose of castor oil every second day, which produced one rather scanty evacuation, and yet when we come to examine his intestines, we find numerous patches of ulceration.

This case is calculated to make a deep impression on every reflecting mind ; in a practical point of view it is of great importance. If the scrofulous disease had in this case been entirely limited to the bowels, and had not touched the lung, the great probability is, that it would have been almost wholly latent ; that the man would have taken no notice of it, would have thought himself well, and eaten, drank and worked as usual ; that the disease would have gone on stealthily committing its ravages, and that one of the first symptoms of danger would have been the occurrence of perforation, followed by universal and fatal peritonitis.

The question would then be as to the cause of death. The pathologist would open the body, and find at once that the cause of the whole mischief was ulceration of the intestines ; but he would be mortified to think that the work of destruction had gone on silently and unobserved, and that it could not be recognised until a new disease appeared, under which the patient sank. I have read of more than one case in which a person killed by accident was found to have large ulcerated patches in the ileum, and yet had not been known during life to complain of any intestinal symptoms. In one case, a strong and apparently healthy Lascar, who had eaten heartily an hour before he was killed, and whose digestion was, according to his friends' account, unaffected by any morbid derangement, presented, on examination, a number of deep ulcers in the ileum, which would, in all probability, have ended in perforation and peritonitis in the course of a few days.

In the third and last case to which I shall refer, in illustration of the latent character which phthisis sometimes assumes, arachnitis was also present, and likewise without any indicative symptoms. A young policeman, apparently of strong constitution, and on active service up to the date of his present attack, was admitted on the tenth day of his illness into our fever wards. His surface was cold ; his feet and hands blue ; his pulse seventy, exceedingly

weak ; he lay in a listless state ; he sometimes answered questions slowly, but rationally ; but at other times paid no attention to what was said to him. He had complained of pain in the forehead the first ten days of his illness, but though the question was frequently put to him afterwards, he always expressed himself perfectly free from any pain or uneasiness in that part. During the day he was quiet, but towards evening he generally became delirious and violent, and on those occasions it was found necessary to apply the tight vest. His head was always cool ; he had no contraction of the pupils, no increased pulsations of temporals or carotids, no suffusion of eyes, and no sweating of face or forehead.

From the date of his admission until that of his death, which occurred sixteen days afterwards, he never exhibited the least febrile disturbance ; his pulse fell down to sixty, was weak but regular ; *respiration always* perfectly natural, and he was never observed to cough. Though in the progress of his disease he got subsultus, jactitation, muttering, and complete insomnia, yet all this time the head was cool, and he presented no positive symptom of an active inflammatory process going on in the brain. Indeed the disease was so protracted, and the disturbance of the nervous system so similar to what frequently occurs in fever uncomplicated with inflammation, that I pronounced his disease to be nervous fever. Four days previously to death, purging had been present.

Post Mortem —The dura mater was quite healthy, but the arachnoid was in several situations opaque and thickened. At the base of the brain, the nerves were all matted together by a thick yellow lymph, which extended from the optic commissure to the medulla oblongata, concealing from view all those parts which form the floor of the third ventricle, and also the origins of the third and sixth pair of nerves. The arachnoid covering this lymph was thickened and opaque, the pia mater was much injected, and the substance of the brain was more vascular than natural, but in other respects normal.

The chest was next examined, and our investigation in this cavity disclosed what we were not prepared to expect. Both lungs were extensively studded with tubercles, and were in every part occupied either by phthisical abscesses or emphysema. The entire of both upper lobes was converted into abscesses, varying in size from that of a hen's egg to that of a Spanish nut, and communicating freely with one another. These abscesses were not of recent formation, for in every instance their walls were hard, thick, and cartilaginous, and some of the larger were traversed by blood-vessels. Most of them were full of puriform matter ; in some the contents were perfectly purulent, in others pus mixed with blood, resembling the prune-juice sputa of pneumonia. The heart was healthy ; the ilium was healthy, but the cæcum was inflamed, and presented many ulcers of a long irregular shape, extending through every structure down to the peritoneal coat, which, on the outside, presented no unusual appearance opposite these ulcers. Their edges were elevated, hard, and well defined.

An important reason why tubercular deposition sometimes escapes our recognition during life is, that percussion does not always afford us a means of arriving at a true diagnosis in cases where solidification of the lung has taken place. It is generally believed, that in cases where the actual quantity of air in the lungs is morbidly increased or diminished, percussion furnishes us with means of information adapted to every variety of case, and capable of unlimited application. This, however, is not the fact. It is true that when percussion furnishes positive evidence of increased pulmonary solidity,

we may be pretty sure that solidification exists; but such evidence is not furnished by percussion in every case of the kind indiscriminately, for it now and then happens that percussion elicits a very clear sound from the parietes of the chest, corresponding to considerable solidification of the lungs within. Of this I have now witnessed several instances. You will ask, how then are we to explain this apparent contradiction between the results afforded by percussion? This is a question of much importance, and I hope the solution which I am about to offer will be found adequate and satisfactory.

An old man named Foy died lately at Sir Patrick Dun's Hospital of hepatisation of the inferior lobe of the right lung, with numerous tubercular depositions in the upper lobe of both lungs. During his illness I pointed out the existence of extensive hepatisation of the lower lobe of the right lung, in which perfect and decided dulness marked out accurately the space occupied internally by the solidified pulmonary tissue. But anteriorly, and above, the parietes of the chest returned a clear sound on percussion, nor could a vestige of dulness be anywhere detected. Yet the whole of the upper lobes of this patient's lungs was occupied to such an extent by crude tubercles, that no portion of the upper lobes could be selected, equal to half the size of a fist, which would not sink in water. This was owing to tubercular matter, which occupied the pulmonary tissue in detached infiltrated masses, or in single crude tubercles.

How, then, did it happen that such extensive solidification of the upper lobes existed without any corresponding dulness on percussion? A careful examination of the pathological condition of these lobes satisfactorily explained the anomaly. On accurate inspection, we found that although the solidified masses of the pulmonary tissue were extremely numerous, and predominated over the parts which still retained their natural vascular texture, so that an extensive portion of the upper lobes seemed to be quite solid, yet the solidified portions were insulated and divided from each other, throughout the interior of the lobe, by intervening laminae of healthy pulmonary tissue, and on their surface were, for the most part, covered by a stratum of healthy vesicular lung, from a quarter to half an inch in thickness. Indeed, although the solidified masses (to use a geological expression) sometimes cropped up, and came to the surface, yet this was a comparatively rare occurrence; and by far the greater portion of that surface was composed of a thin stratum of pervious vesicular tissue. To this was owing the clear sound elicited by percussion.

You will recollect, therefore, that in certain (I will admit rare) cases of tubercular deposition in the lungs, the tubercular development may have proceeded to the extent of rendering the greater portion of the upper lobes impervious to the air, and may have solidified those bodies considerably, and yet the solidified portions may be so divided from each other by laminae of healthy lung, and may be so covered by a stratum of vesicular tissue, that the general result of percussion is to elicit a clear sound over the whole of the parietes of the chest corresponding to the affected lobes.

I shall now conclude with some observations on laryngeal phthisis, referring first to the case of Francis Thorp, which is important both in itself and from the circumstance of such cases being frequently met with. This lad, who was much exposed to the weather, being an outside servant, was attacked about six months ago with cold, followed by hoarseness and sore throat, with cough, then slight, but at present rather troublesome. A certain degree of rawness about the fauces was observed soon after the attack, and

latterly the sub-maxillary glands have become slightly enlarged. On looking into the throat, the velum and fauces appear redder than natural, the amygdalæ are swollen, and the mucous membrane covering the back and sides of the pharynx is dry, and covered with irregular superficial excoriations. The hoarseness still continues, and he can only speak in whispers. His general health, however, does not seem in any degree impaired; he has no fever, his appetite is good, and his sleep natural.

This case, however, is one which demands particular attention. A boy is attacked with cold; he gets slight local inflammation of the fauces and larynx: this produces cough and hoarseness, which go on for months rather increasing than diminishing, and his symptoms finally assume a chronic and intractable character. Still he does not fall away in flesh, has no symptom of hectic, and, on examining his chest, you cannot find any evidence of the existence of tubercles. In making the prognosis in such a case, you should always act with great caution.

Though an examination of the chest should detect no sign of tubercles, and a review of the state of the constitution should satisfy you that there was no fever, night sweats, or a wasting of flesh, the obstinacy and persistence of the inflammatory condition of the larynx and fauces would seem to show that the affection, though not decidedly of the scrofulous character, was still very analogous to it, and might end in phthisis. You should not be so sanguine as to anticipate a certain cure, because the cough and laryngeal symptoms are unaccompanied by fever, or by stethoscopic phenomena, indicating the approach of phthisis. The disease, by fixing itself in the larynx, and keeping up a constant irritation in the neighbourhood of the lungs, would probably, after some time, (if exacerbated by fresh colds, and confirmed by neglect), give rise to tubercular development.

We have then a form of chronic laryngeal inflammation which has been described under the name *phthisis laryngea*. Of this disease there are two varieties. In one case the hoarseness and sore throat follow the development of tubercles in the lung; in the other, they precede it. Consumptive persons frequently get, shortly after the occurrence of serofulous inflammation of the lungs, sore throat, hoarseness, and laryngeal cough. But this is different from the hoarseness and cough which precede phthisis. In the former the laryngeal symptoms are secondary, and form only a part of the general disease; in the latter they constitute the first link in the chain of morbid action. The former take place only in a constitution decidedly serofulous; the latter occur most commonly in constitutions which have been impaired by various debilitating causes, and thereby rendered analogous to, or identical with, the serofulous.

One disease, however, explains the other; for it is clear that if a certain state of the constitution is capable of occasioning serofulous inflammation of the lungs and tubercular development in the pulmonary tissue, in the first instance, and laryngeal disease in the second, it is clear, I say, that the order of succession may be very easily inverted, and that in such a constitution, the accidental circumstance of a cold falling on the larynx may determine the appearance of disease in that part long before the lungs become engaged. Hence, whenever you are called on to treat a case of chronic laryngitis, where the disease has lasted for any length of time, and where the patient's system has been impaired by any debilitating cause, or where you have any reason to suspect that he is of a strumous diathesis, your prognosis should be always guarded.

You should not, however, give up the case at once ; particularly if an examination of the chest assures you that there is no serofulous deposition going on in the lung. In the first place, endeavour to remove the inflammation of the throat, if possible ; by doing this you will accomplish a vast deal ; and in the next, you shall direct all your efforts towards improving the state of the constitution ; for in this way you make the greatest progress in checking the tendency of the individual to serofula.

If there is much tenderness of the larynx on pressure, as you can easily ascertain by placing your finger and thumb on each side of the thyroid cartilage, pressing the larynx backwards, and moving it from side to side, you should commence with the local detraction of blood. A small number of leeches should be applied to the throat every second or third night, and this should be continued for a week or fortnight. If there be no tenderness of any amount, and the patient can bear pressure freely, there is no necessity for applying leeches. Your means must then be confined to those remedies which act immediately on the diseased mucous surface ; and for this purpose, one of the best applications is a solution of nitrate of silver, ten grains to the ounce, or a solution of the sulphate of copper in the same proportions. The best mode of applying it is to take a probang, or a small piece of sponge fastened to the end of a quill, dip it in the solution, and having slightly squeezed it, to prevent the liquid from dropping, touch the excoriated and red parts of the fauces as far as you can conveniently go, rather by pressing the sponge gently against the inflamed mucous membrane than by rubbing. It will be essentially necessary to touch every portion of the diseased surface of the pharynx ; for if any part be omitted, it will have the effect of keeping up the disease.

You perceive the object here is to change the action of the mucous membrane. By acting powerfully in this way on the mucous membrane covering the pharynx, fauces, and entrance of the larynx, you will often succeed in bringing on a healthy action, which spreads to the parts of the vicinity. Of this we have an illustration, afforded by the results of treatment in chronic diseases of the skin, where local applications to a particular part not only cure that part, but also extend their influence to a considerable distance on every side. It is the same with respect to irritation or inflammation of the lower part of the digestive tube ; the use of astringent injections, which can only affect the lower part of the rectum, is often found of essential service in relieving dysenteric affections of the colon.

In addition to the use of the nitrate of silver, we have employed a remedy in this boy's case, which has been found beneficial in several instances where no sign of pulmonary irritation is present—I allude to the use of iodine inhalations. This was also intended to make a still further change in the condition of the diseased mucous membrane. It is made by putting from five to ten drops of the tincture of iodine, with half a drachm of tincture of conium, and four ounces of hot water into an inhaler, and making the patient draw the vapour into his throat for about ten minutes every night and morning.

This form of inhalation proved extremely serviceable in the case of a gentleman who has attended my lectures this winter. About the commencement of November, while in a delicate state of health, he was attacked with cold, and got sore throat, followed by slight huskiness of voice, and hard, incessant laryngeal cough. These symptoms continued during December and the greater part of January, and were not completely removed until the beginning of February. He had considerable rawness of the back and sides of

the fauces and larynx ; we observed that the mucous membrane of those parts had a strong tendency to become excoriated ; for whenever an exacerbation of his symptoms occurred, and that his cough in the morning was harder than usual, small portions of the detached pellicles of lymph, exuded by the mucous membrane, came away at each fit of coughing, and his sputa were tinged with blood. There was another symptom in this case, which you will very frequently meet with in similar instances, namely, a remarkable feeling of chilliness in the integuments of the fore part of the neck and external fauces. This he was in the habit of remarking, and could always foretell the occurrence of an exacerbation of his laryngeal symptoms, by the increased feeling of cold in the cutaneous surface over the diseased parts.

In this case a great deal of good was effected by the inhalation of iodine with conium. The mode in which this gentleman employed it was by dissolving from six to nine grains of the extract of conium in water, and then adding the tincture of iodine ; but the expressed juice of hemlock—the "*succus conii*," answers much better for this purpose ; from two to three teaspoonfuls of it may be used. Instead of the common inhaler, which contains but a small quantity of fluid, and in which the inhalation becomes cold in a very short time, he employed for the purpose a high old-fashioned tea-pot, which contained a large quantity of fluid, and could be used for a much longer period. Under the use of this, with counter irritation, and the internal use of iodine with sarsaparilla, the laryngitis disappeared. It returned, however, about a month afterwards on fresh exposure ; but was speedily removed by the use of the nitrate of silver solution.

Another thing which we have prescribed for this boy, and which proves an excellent adjuvant in the treatment of such cases, is counter-irritation by croton oil frictions. To an ounce of compound camphor liniment we add twenty or thirty drops of croton oil ; and of this lotion about one or two drachms are to be rubbed over the part night and morning, until the eruption appears. Two rubbings are generally sufficient to produce a copious eruption of papule, about the size of a pin's head, and having exactly the appearance of a disease at present very rare—the *eczema mercuriale*.

We have not, however, been able to effect any remarkable improvement in this boy's symptoms by the means to which I have just now alluded ; and the question is, what other remedies have we left from which we could hope to derive any advantage ? The boy has no fever or emaciation ; his appetite is good, his sleep regular, and the stethoscope informs us that there are no symptoms of tubercular development : we are, therefore, I think, authorised in attempting to arrest the disease by the only means of which we have a choice under such circumstances. It is my intention to attempt its removal by mercury, and I have therefore ordered him to take, three times a-day, half a grain of calomel, three grains of blue pill, with a grain of the extract of conium ; and instead of iodine we have directed him to inhale the vapour of hydrargyrum cum cretâ twice or three times daily. If, however, we find that this does not produce speedy improvement of his symptoms, we shall stop it immediately, as the use of mercury in such cases is generally a perilous experiment. I shall also take care to pay attention to the general state of his health, as this is a matter of great importance in cases of chronic disease. I had almost forgotten to observe, that in such cases the use of the decoction of sarsaparilla with nitric acid has been found extremely beneficial.

There is one point in the treatment of chronic laryngitis and laryngeal phthisis which you should never forget—and that is, to make the patients

refrain as much as possible from speaking. Unless they do this, you will find it very difficult to effect a cure. A person with an inflamed larynx, who exercises his voice as usual, acts as foolishly as a man who reads with inflamed eyes, or walks with a sprained ankle. The only thing I have to add with respect to the treatment of this disease is, that the patient should be kept as much as possible in an equal temperature, and hence it will be necessary in many instances to confine him to the house, or at least to prevent him from exposing himself to a cold and damp atmosphere. When he recovers, he should use cold gargles and cold lotions to the throat, in order to render the parts less susceptible of cold.

In conclusion, I may remark, with reference to a sign looked upon as highly characteristic of the phthisical diathesis, that within the last ten years I have seen, in private practice, three examples of hypertrophy of the finger tops, and corresponding hypertrophy of the nails, two occurring in delicate, and one in a phthisical habit. In all these patients the remaining parts of the fingers were emaciated, while the tips of the fingers were much and abruptly enlarged, especially in the transverse diameter, the nails being also of greater size, considerably longer, broader, stronger, and more curved than natural; in all these there was evident increase in the capillary circulation, and the tips of the fingers were red, tender, and painful, and often bathed in sweat; a minor degree of this affection, characterised however only by incurvated nails, while the tips of the fingers are much less emaciated than other parts of the hand, feel hotter to the patient, and sweat more, is frequent in phthisis.

LECTURE XLVL.

HEMOPTYSIS.

WE shall devote this lecture, gentlemen, to the consideration of hemoptysis. Let us first consider it with reference to the different parts of the vascular tissue of the lungs, which are engaged in its production, and afterwards speak more accurately of the symptoms attendant on each. It may be well to commence with the source of hemoptysis, because there are some misconceptions respecting it, and I do not think that it has been clearly laid down in books written on this subject; I shall therefore devote more time to the consideration of some points of the morbid anatomy of this disease than I usually do in a clinical lecture. Other circumstances which you will find sufficiently described in written treatises I shall pass over briefly.

In order to comprehend fully the peculiarities of hemoptysis, it is necessary that you should be intimately acquainted with the circulation of the lungs. Here you have not only the simple circulation, as in other parts, but,—as in the liver, we have the vena porta for the formation of bile, and the hepatic artery for nutrition,—so in the lungs we have the pulmonary arteries carrying blood which is to be aërated, while the bronchial arteries carry blood for the support and reparation of the pulmonary substance.

You are aware, gentlemen, that it has been shown that the lung is but a large gland, whose ducts are the bronchial tubes, and whose secreting surface is that of the air cells. There is this difference in the sources from which blood is furnished to the lungs; the bronchial artery is small, and its blood red; the pulmonary artery immensely large, and carrying dark blood, which is to be aërated; the bronchial arteries follow the course of the bronchial tubes, interlace with and ramify over them, enter them, and are distributed in great profusion to their mucous lining. On the inflammatory action of these arteries the redness and injection of the mucous membrane, observed in cases of bronchitis, depends. The bronchial arteries also send branches to the areolar membrane connecting the air cells, and to the surface of the lungs, but it is for the mucous membrane lining the bronchial tubes the greater part of their blood is destined.*

You know that if we examine the structure of the lungs, besides their vascular tissue, we observe they consist chiefly of ramifications of the bronchial tubes leading to air cells. These cells may be represented as so many minute vesicles, each communicating by a minute aperture with an extremely small ramification derived from the bronchi. This fact has been shown and de-

* Reissseisen remarks, that by far the greater portion of this blood is returned, not by the bronchial veins to the right side of the heart, but by the pulmonary veins to the left side. Is this peculiarity owing to this blood being dissimilar to other venous blood, in consequence of being aërated in the bronchial tubes? or is it because it may be mixed with impunity with the great mass of aërated blood returning from the lung?

scribed by Reisseisen. The vesicles which are placed at the extremities of these minute branches, and the branches themselves, present certain differences, the vesicles presenting a greater degree of tenuity, and a strong resemblance to serous membrane. These distinctions between the structure of the air cells and that of the bronchial tubes cannot be easily recognised in the very minute tubes of the bronchial ramifications, but become more evident as we ascend towards the larger bronchi. The use of the air vesicles is to aerate the blood in the lungs, and it is on the parietes of these vesicles or cells the ultimate branches of the pulmonary arteries are distributed.

When we come to speak of discharge of blood from the lungs, and to consider the phenomena it presents, we find that it may take place from the minute extremities of the bronchial or of the pulmonary vessels. The seats of the ultimate ramifications, as I have before mentioned, are completely distinct, and it is important to recollect that they are so. Inject the bronchial arteries with as much care as you possibly can, and I say you cannot by doing so inject the vessels which ramify on the air cells, nor can you, on the other hand, inject the vessels which are distributed to the mucous membrane of the bronchial tubes from the pulmonary arteries. Of this I am perfectly sure, for I have tried the experiment myself unsuccessfully, and have examined with the greatest care the beautiful preparations in the museum of the late Dr. Townsend, and neither he nor Dr. Houston could show me one instance of the bronchial mucous membrane having been injected from the pulmonary artery. Even the finest injections used by Dr. Houston at my request, in the lungs of dogs, failed to effect what would indeed be easy of accomplishment, if engorgement of the system of the pulmonary artery were capable of producing bronchial hemorrhage.

There is, to be sure, a system of capillary vessels in the lung, through the medium of which an indirect communication is established between the bronchial and pulmonary arteries and the pulmonary veins. Dr. Law, of this city, in the article "Hemoptysis," in the *Cyclopædia of Practical Medicine*, has handled the subject of the relative distribution of the vessels in the lungs with his usual ability. I cannot, however, see that Reisseisen, whom he follows, justifies him in considering hemorrhage from the bronchial tubes as a consequence of hemorrhagic engorgement of the system of the pulmonary artery. "We readily account for its frequency," says Dr. Law, "by the facility with which an injection is found to pass from the pulmonary into the bronchial artery." Reisseisen, it is true, points out that the bronchial and pulmonary arteries anastomose with the same system of capillaries on the surface copiously, and more sparingly in the areolar texture of the lung; but his description likewise proves, that the bronchial mucous membrane is exclusively supplied with red blood by the bronchial arteries.

It is indeed true, that we can force injection from the pulmonary artery into the bronchial tubes, but even in such cases, the bronchial mucous surface is uninjected, and the injection finds its way therefrom into these tubes by other channels than the bronchial artery or its ramifications, which would indeed be a retrograde course. I am therefore of opinion, from the reasons above stated, that when hemoptysis, from the engorgement of the system of the pulmonary artery, takes place, it is in consequence of the direct effusion of blood from the branches of the pulmonary artery, which ramify on the air cells, and that the blood expectorated on such occasions has nothing to do with the bronchial mucous membrane, or bronchial arteries.

When we recollect the peculiar texture of the lungs, and the quantity of

blood which is sent through them at each stroke of the heart ; when we consider the excessive tenuity and delicate structure of the air cells, which, when the lung is inflated by inspiration (and that is the very moment when the most blood rushes through it), imparts to the touch the feeling of an elastic but almost gauze-like and cellular substance, we are surprised to find that cases of spitting of blood are not much more frequent. The lung, however, is an organ so important to life, that if ever there was much danger of hemorrhage from its tissue, it would be a greater error in our structure than nature was likely to commit. Cases of this kind are comparatively rare, and we do not meet with them every day in our hospitals. Compare with the patients afflicted with dangerous and copious hemoptysis, the number of cases of bleeding from the nose, hematemesis, discharges of blood from the bowels, and hemorrhage in general, and you will find that the lungs are not more liable than other parts to sanguineous effusions.

When speaking of the vascular arrangements of the lungs, we mentioned that the bronchial mucous surface is supplied with blood from the bronchial arteries, and the air cells from the pulmonary. Hence we can divide these discharges into two kinds, those which come from the pulmonary, and those which are derived from the bronchial arteries ; and these will be found to be distinct, not only in their pathology, but also in their characters and the symptoms by which they are attended.

We shall go through this minutely. Let us suppose that the pulmonary artery is disposed to bleed, what will take place ? Its ultimate ramifications, which are distributed over the air cells, get an hemorrhagic tendency, and blood escapes from them in two different directions, into the air cells, and into the areolar tissue which connects them. That portion of blood which gets into the air cells will also get into the bronchial tubes, and may be spit up. That portion which gets into the inter-vesicular areolar tissue has no such exit : there it must remain and become coagulated and solidified. Now, as either of these effects may happen, we may have spitting of blood, or else effusion into the areolar texture, without hemoptysis.

It is to the union of these two diseases the term *pulmonary apoplexy* has been applied, in which we have blood effused into the cavity of the air cells, and outside their cavity into the areolar tissue. What is the result of sanguineous effusion from the pulmonary branches ? In the first place, the blood is black, as you can perceive when it is spit up. It is also clear, that if this blood be detained for some time in the air cells and bronchial tubes, it will become coagulated and be spit up in clots. Many of the worst cases of spitting of blood are attended with this symptom ; and it is a mistake to suppose, as you see it mentioned in books, that blood expectorated from the lungs should be florid and frothy.

You are told gravely, that you can distinguish blood discharged from the stomach from that which is discharged from the lungs, by the difference of its colour, consistence, and the presence or absence of air bubbles. No, gentlemen, you cannot. If you see blood spit up which is dark and coagulated, and from stethoscopic examination have reason to think that it comes from the lungs, you will be convinced that the effusion is from the pulmonary artery. I do not mean to say that when blood comes from the pulmonary artery it is always black and clotted ; but I assert that it is so in a great majority of cases ; and in many cases of pneumonia we find the sputa partake more of the venous than the arterial character, a circumstance which indicates its formidable source. It is obvious that the blood spit up in those cases

may also have a florid tinge, where it has been imperfectly aerated by the imperfect action of air bubbling through it before it is expectorated. Not only is it possible, as I have stated, that black blood may be changed in colour after effusion into the bronchial tubes, by the rapid bubbling of air through it, but it is also extremely probable, that if arterial blood ooze out very slowly from the bronchial surfaces, and remain for any considerable length of time in the air passages mixed with their mucous secretion, it may, before it is expectorated, change its hue and become dark, as happens where red blood is long exposed to the action of the secretions of the alimentary canal, for example, in *melæna*. The correctness of these views has been confirmed by the experiments of physiologists, as the following extracts which I shall read for you show :—

“When arterial blood is kept at rest in a living vessel, it gradually acquires the properties of venous blood, as may be seen on slackening a tourniquet after an amputation when the first blood that issues from the divided arteries is of a dark colour. If arterial blood is placed *in vacuo*, or is exposed to nitrogen, hydrogen, or carbonic acid, it loses its florid hue. Extravasated arterial blood remains florid for several minutes ; after an interval it is found to have coagulated, and to have acquired a dark colour.”—*Mayo's Physiology, Fourth Edition*, p. 21. Again :—“That the changes which venous blood undergoes in the lungs are to be explained upon principles of a purely chemical and physical nature, is evident from the fact, that the same changes will take place when it is exposed to the air out of the body, even through the medium of a thick membrane, such as a bladder. * * * * If arterial blood be exposed out of the body to carbonic acid, it will acquire the dark hue of venous blood ; and venous blood exposed to it becomes still darker.”—*Carpenter's Physiology, Third Edition*, p. 598.

There are some hemorrhages also, from the bronchial artery, which are very copious ; but, generally speaking, where there is much cough, constriction of the chest, and fever, it is the bronchial mucous surface which is affected ; and the spitting of blood which, in such cases, comes from the bronchial arteries is but scanty, and is seldom dangerous. The blood will be found to be effused from small spots, as in epistaxis, and the quantity is generally small. You will, however, sometimes find an instance of a person spitting up very copiously blood of an arterial colour ; for it must be borne in mind that a very small surface of mucous membrane may often bleed most copiously, as is seen in some cases of epistaxis, when the blood issues from an insulated and small spot. Such cases of copious bronchial hemorrhage occur occasionally, are unconnected with bronchitis, and depend on some peculiar hemorrhagic tendency.

We have thus drawn a distinction between these two kinds of hemorrhage ; let us trace it further. Suppose you have a case where blood is effused into the areolar tissue of the lungs ; the blood so effused is immediately submitted to a peculiar action of the animal economy. It is first by coagulation separated into two portions, serum and crassamentum. The serum is rapidly absorbed, and as soon as this is accomplished, the crassamentum becomes solidified, and remains there with its colouring matter, as you have it represented in this plate of Cruveilhier's, where you perceive, as it were, balls in the substance of the lung, of a solid consistence and red colour, formed by the colouring matter and clot.

The first effect of effusion of blood into the areolar tissue is a tendency to solidification, one chief consequence of this disease, which has not been noticed

by those who have written on pulmonary apoplexy. Nature is anxious to stop this effusion of blood, as, in this instance, it threatens that life which she watches over at all times with so much care. Now, what is the consequence of this solidification? First, all the air cells of the part are closed by the pressure of the coagulum, that portion of the lung which has been bleeding becomes impervious to the air, and this circumstance alone is sufficient to arrest the hemorrhage. And why is this the case? Because the blood which flows through the pulmonary arteries cannot pass into the veins unless in its passage it be aerated. It is its aëration which, at the first moment when the infant respire, causes the blood to rush through the pulmonary vessels in ten times the quantity it did before birth.

If you asphyxiate an animal, or by any means put a stop to the process of aëration, you will find that in proportion as the air in the lungs becomes deficient or impure, the blood ceases to pass from the right to the left cavities of the heart, because it cannot pursue its natural course unless it be properly aerated. Hence, when a part of the lung becomes impervious to the air, the passage of the blood, so far as that is concerned, will cease, and consequently the tendency to hemorrhagic effusion.*

You see, then, in this case, two causes in operation to prevent effusion of blood—mechanical pressure, and such a state of that portion of the lung which had been bleeding, that less blood goes to it in consequence of its no longer performing its share of the respiratory function.

A great deal has been written about the ulterior effects of blood thus effused. It is evident that when the effusion takes place into the air-cells, it may be spit up and produce no further harm; and if the patient recovers without any effusion into the intervesicular tissue, there is no trace of the disease. The danger, therefore, arises from the quantity of blood poured into the areolar texture, which, by obliterating the air-cells (if the extent be considerable), may destroy the functions of the lungs, and in this way produce death, as you may have observed in the case of hemoptysis above stairs, where the cessation of spitting of blood was a bad symptom. The disease was going on for some time, and not confined to any particular part, but extending over the whole of one of the lungs, and you can now conceive the reason of this man's death. It was because by effusion and solidification to a great extent he was deprived of the use of his lung.

Yet you will find instances where a person has more than half the lung filled with a clot of this kind, and still survives; and you may observe parallel cases in the prolonged life of some patients who labour under organic disease of the lungs. This is generally seen where the quantity of blood circulating in the whole system is small; for when the power of aëration is diminished, it is necessary that the quantity of blood which passes through the lungs should be reduced below its average amount, or its course will be arrested.

Where then we have extensive solidification of the lung, and obliteration of the air-cells from such effusions, what is the consequence? Sometimes we have sudden death from dyspnœa, sometimes the fatal termination is of a slow character. It is stated by some authors, that blood of this kind acts as

* By the *passage of the blood*, is here only meant the rapid and unimpeded circulation from the pulmonary artery into the pulmonary veins, for it is evident that a part of the lung, impervious to the air, may be the seat of sanguineous engorgement, as happens in the posterior parts of the lungs of those who die after a long agony, or in the various stages of pneumonic engorgement and hepatization.

a foreign body—as an irritant, and excites inflammatory action. Others say that the effused blood not only produces inflammation, but also gangrene and softening of the affected portion of the lung. With respect to this, I may be permitted to express very strong doubts.

We do not see effusions of blood in other parts of the body attended with such consequences. I would ask any one who has seen a case of ecchymosis under the conjunctiva, where that membrane is raised high over the eye-ball by an immense clot of blood, whether this clot, though in such close juxtaposition with an extremely sensitive organ, ever produces inflammation? How often have we seen blood effused into areolar tissue from wounds or contusions, remain quietly in its new situation, and be absorbed, without producing any inflammation? But, with respect to this question, the admission of all pathologists, that many such solid portions may exist in the lungs together, without the least appearance of inflammation in the pulmonary substance immediately around them, seems quite conclusive. Thus, in Cruveilhier's plate now before you, the section of the lung showed that the cells were uninfamed quite to the very edge of the various solidified portions, although they had existed for many days before death. Again: do we not know, that even in the brain itself blood may be effused and sudden paralysis produced, and that the patient may quickly recover, and a clot remain in the cerebral substance without producing inflammation. It is true that blood effused into the lungs is, in many cases, attended with pneumonia, and that extravasations in the brain are frequently accompanied by softening. This I do not deny; but I think that both are simultaneous effects of the same cause, and that in the one case pneumonia and sanguineous effusion, and in the other, extravasation and ramollissement are only different parts of the same process.

If a person recovers after the discharge of a large quantity of blood into the lungs, what is the consequence? If the constitution be sound, and the hemorrhagic tendency does not recur, it is probable that this portion may be submitted to the action of absorption, and ultimately rendered healthy. This I believe may happen, for the phenomena of absorbed hepatization in pneumonia gives it probability, and though I myself have not seen it verified, it is described as having been observed by others. I have, however, ascertained satisfactorily, that this portion of the lung may remain solid for a considerable length of time, without producing any particular symptoms. Two cases of this condition of the lung, remaining in one instance for a year and a-half, and in another for three years, without subjecting the patients to any inconvenience whatever, have come to my knowledge, and, after death—which was caused in each by a different disease,—I have been able to detect these solidifications by dissection.

It has been stated that persons who have portions of the lungs solidified are liable to phthisis. Where scrofula exists, tubercles may be precipitated into suppuration from this cause; but where the constitution is not scrofulous, the consumption which follows solidification of the lung is certainly not tubercular. I remember having attended, some time ago, a young man who had an attack of pulmonary apoplexy, and who afterwards got all the symptoms of phthisis except diarrhoea; I watched this case through all its stages, month after month. On examining the lungs after death, I could not detect a single tubercle; the matter was extensively diffused through the areolar tissue, constituting that disease to which the name of suppurating pneumonia has been given.

In the case of a young gentleman residing in Gardiner-street, who was attended by the late Mr. Colles, the symptoms I have now mentioned were present, and it was generally thought that he was dying of tubercular consumption. I was called in to see him, and, on inquiring into the history of the case, I gave it as my opinion, that it was not tubercular consumption, but extensive suppurating pneumonia, an opinion which was borne out by the necroscopic phenomena. You see, therefore, gentlemen, that a man may live for a considerable time with a portion of his lung solidified in consequence of this disease, or that he may get pneumonia, which may go on to interstitial suppuration, and present all the symptoms of tubercular consumption; or, if his constitution be scrofulous, he may get true tubercular phthisis.

It is obvious, that in a person whom this disease would render obnoxious to pneumonic inflammation, if scrofula exists, you will have the tubercular instead of the pneumonic action developed; for in scrofulous habits you will find that every cause which produces irritation, or a tendency of blood to the chest, produces also a tendency to consumption. Dr. Stokes and I attended, some time since, a gentleman who had pleuritic effusion in the right side of the chest, with engorgement of the lungs and dyspnoea. During the course of the disease he got tubercles, and where, do you think? Not on the side where the pleuritic effusion existed, but in the upper part of the left lung. You should not be surprised at this; it was a consequence of the disturbance of the respiratory functions, and you may be assured that every thing which deranges the pulmonary circulation in scrofulous persons, has a strong tendency to the development of tubercles.

There is a question in Laennec's work, in which it is asked, can spitting of blood be considered as the cause of consumption? To this I answer, that I have seen more than one case of pulmonary apoplexy in which the patient died of the first attack, and yet not a single tubercle could be found in the lungs. It may certainly produce a tendency to consumption, but is not a necessary cause of it. The same may be said of bronchial hemoptysis. Any one who has witnessed the dissections of the lungs of tuberculated patients must have frequently observed that tubercles are accompanied by an inflamed state of the bronchial mucous membrane. It is notorious also, that this state of the mucous lining, with the hard dry cough which it occasions, is one of the first symptoms of tubercles in the lung; and we therefore find, in many instances, that bronchial hemoptysis is a consequence and not a cause of tubercle.

Having hitherto dwelt chiefly on the general pathology of hemoptysis, I shall make some additional observations on the causes of this disease, and then proceed to the treatment, without entering into any accurate description of the particular symptoms, which you will find sufficiently detailed in most works on practical medicine.

You recollect, I differed from Dr. Law, with respect to the source from which the blood is derived in bronchial hemorrhage. Dr. Law is of my opinion, that any thing which produces engorgement of the system of pulmonary artery occasions hemorrhage from the bronchial tubes; but this, for the reasons before stated to you, is impossible. I have also endeavoured to explain to you the manner in which pulmonary apoplexy may be followed by extensive disease of the lung, interstitial suppuration, and death; or, on the other hand, how a coagulum may be formed in the substance of the lung, and the person affected remain in a state of perfect health. I have proved, from dissection, that after the lung has been solidified in consequence of pulmon-

ary engorgement, it may remain in that condition for years, or if a scrofulous diathesis exist, such an occurrence may be followed by tubercular consumption.

I have mentioned that kind of consumption supervening on effusion into the areolar tissue of the lung, where there is extensive interstitial suppuration, and not a single tubercle can be discovered. You will also recollect my statement that I could adduce instances in which pulmonary effusion took place, and the clot remained in the areolar substance without producing any irritation, and that on dissecting such lungs I found those organs perfectly sound up to the limits of the clot, and this in cases where the effusion had existed for several months.* Now if this remained in the substance of the lung as a harmless body, for so long a space of time, I cannot conceive how a similar effusion could in any one case become a stimulant. I differ also from those who think that the effused blood may become corrupted and a cause of gangrene.

We shall now proceed to the consideration of some of those constitutional tendencies, which render persons liable to spitting of blood. It has been frequently remarked, that bleeding from the nose, during the periods of infancy and adolescence, is a symptom of frequent recurrence in those who are obnoxious to this disease, and in such persons without any apparent cause, and unaccompanied by any proper fever; the attack comes on with an hemorrhagic excitement of the circulation, sense of constriction in the chest, anxiety, dyspnoea, cough, and expectoration of blood of an arterial colour and frothy appearance. As soon as the expectoration, which is sometimes copious, sometimes scanty, takes place, the patient gets relief. There is not much preceding or following cough.

Such are the characteristics of this hemorrhage, which, notwithstanding Louis' statement, does not prove the existence of tubercles, or engorgement of the system of the pulmonary artery, and has no more reference than epistaxis to disease of the lungs. I knew seven gentlemen of the same family, most of whom were in the army, and residing in different climates, who were all subject to sudden expectorations of blood, without any particular antecedent or subsequent cough, or other symptoms of chest disease. Now I need not tell you, that as long as the hemorrhage preserves this character, and confines itself to the bronchial mucous membrane, there is very little mischief done. Persons thus affected will have repeated attacks of this kind, and though their lives are not the best, may attain a good old age. It is only when the extreme branches of the pulmonary artery take on the hemorrhagic action that danger is to be apprehended; and so it was with one of the gentlemen just mentioned. He had, during a period of twenty years, many sudden and often violent attacks of hemoptysis, which never lasted more than a few days, and always subsided without leaving a trace behind. So long as the hemorrhage was bronchial, it was comparatively free from danger: at last its seat was changed; it occupied the air-cells and inter-vesicular areolar tissue of the lungs, and he died of pulmonary apoplexy.

When the latter takes place, you must be on your guard, for I have seen

* It is not meant, that the effused blood occupies the texture of the lung without becoming organized. This is certainly not the case; all I mean to assert is, that the portion of the lung, originally rendered solid by the clot, remains solid, in some cases, for a great length of time, constituting an insulated mass impervious to the air itself, but not a source of irritation to the surrounding parts.

cases of melæna, where the customary discharge of blood from the intestines was considerable, and instances of piles where the bleeding from the rectum was great, from being suddenly arrested, produce pulmonary apoplexy and death. In such patients, nature attempts to establish a vicarious discharge for that which has been suppressed. This is a frequent occurrence in females, particularly those of a robust habit, in whom the general vascular action is not diminished at the catamenial period. In consequence of the suppression of the menstrual flux, blood is discharged from various parts of the body, but particularly from those tissues which bear the closest analogy to that from which it is naturally derived.

Hence we have one kind of bronchial hemorrhage arising from suppressed menstruation, and which is not usually either preceded or followed by cough or other pulmonary symptoms. Now, this discharge in females is not dangerous ; it goes away as it appeared, without any bad effects ; and the same may be said of hemorrhage from other parts resulting from the absence of the catamenia. Such, you will recollect, was the case of a woman in the Chronic Ward, who had regular attacks of hematemesis at the periods in which the menses should naturally appear. Nothing is more common than to find this vicarious gastric hemorrhage in women, and yet how rarely do we see it preceded or followed by organic disease, or producing the least permanent lesion, or even dyspepsia. Such hemorrhage may be generally said to be devoid of danger. As I mentioned before, the translation is commonly from the mucous membrane of the uterus to a similar surface of the nose, lungs, stomach, or bowels. It seldom or never appears in a parenchymatous tissue ; and hence, in the lungs, rarely terminates in pulmonary apoplexy.

There is this freedom from danger, however, only in those cases where no disease of the lungs, or tendency to pulmonary engorgement, previously existed. Thus, in the case of Eliza Herns, in whom, at the usual period of her menstrual evacuation, a vicarious epistaxis and hemoptysis occurred, the source of hemorrhage was not confined to the bronchial tubes, but extended to the air-cells. The blood she expectorated was, at first, of a florid arterial colour, and was copious ; it afterwards became dark-coloured, and less abundant ; and its source, as was evident from the stethoscopic phenomena, was derived from the ultimate ramifications of the bronchial tubes and the air-cells. *She had been subject to cough and expectoration of mucus for a year previously.*

With respect to the hemoptysis which attends pulmonary apoplexy, I shall only remark (as its symptoms are well known), that here you have the cough, dyspnœa, and other symptoms, following the hemoptysis, and very frequently pneumonia, and even gangrene. I have stated before, that I considered the two latter occurrences as resulting from the same cause which produced the pulmonary engorgement, and not as a consequence.

I will pass over this subject at present, and proceed to give you a few general hints on the hemoptysis which accompanies tubercular consumption. You remember I remarked that it is a disputed point whether this spitting of blood be the cause or consequence of phthisis. When we come to consider this subject dispassionately, and leave out theories, we find that, on examining phthisical hemorrhage, we invariably perceive that the discharge is bronchial, and that it presents the usual characters of arterial blood. It is because the irritation is bronchial you have so many bronchial rales in phthisis ; and hence, if you find bronchitis at the top of both lungs, and none at the bottom of either, and this condition is permanent, your suspicions are natu-

rally awakened, and you are led to the detection of tubercles : a bronchitic rale confined to the upper lobe of one or both lungs, resisting treatment, and accompanied or followed by dulness, at first slight, but gradually increasing, are as valuable physical signs of phthisis as any we possess. I mention this fact, because it proves that one of the permanent characteristics of phthisis is the presence of more or less bronchitis.

As the bronchial hemorrhage in phthisis is generally small, and finds a ready exit, it will not be easy for you to confound it with pulmonary apoplexy. The bronchial engorgement which occasions this hemorrhage often sets in at an early period of tubercular phthisis. When this happens, a curious hemoptysis may occur, and may be the first symptom which attracts attention to the state of the lungs. Hence hemoptysis is often erroneously considered as the cause of the consumption. I beg you to remark, that the bronchial tubes are also the principal source of the puriform expectoration which attends consumption, and that we are not to suppose that it comes exclusively from the cavities in the lung, for the quantity expectorated is by no means in proportion to the size of such cavities.

Again, where the hemoptysis happens to be copious, it is thought to arise from ulceration, or erosion of the coats of the arteries which accompanies the tubercular destruction in the lung. An occurrence like this is, I believe, extremely rare indeed. Such an injury is too serious, and would be followed by too rapid a fatality. Nay, you will even find, on dissection, that the bronchial tubes may be cut across by ulceration, and every other part of the tissue of the lung destroyed, while the coats of the artery remain comparatively uninjured and its cavity obliterated, so that you can trace it passing like a string through the abscess. Neither have I observed that the hemoptysis which arises in phthisis is produced by the ulceration on the mucous surface of the bronchial tubes, though I do not know whether this might not cause it when the ulceration is high up near the trachea.

I shall detain you no longer on the symptoms of phthisical hemorrhage : only remarking that it is generally in the advanced stage that it appears, frequently from induced bronchitis and hard cough, in which case it is generally scanty, or from abscess, although here, also, from the obliteration of the arteries before mentioned, it must usually be slight : as the symptoms of this, and the symptoms which accompany common severe bronchitis and pneumonia, are easily recognised, and have been sufficiently described in books. You will find that Cruveilhier instances diseases of the heart as a great cause of pulmonary hemorrhage. No doubt, this is true in many cases ; for if there be a serious impediment to the return of blood to the left auricle, it will induce pulmonary disease, and you can readily conceive how the valvular structure of the heart may bring on hemorrhage from the lungs.

Now, gentlemen, while on this subject, I shall make one observation. Since Corvisart wrote his great book on Diseases of the Heart, and Laennec published his admirable discoveries, it has been the custom to call all hypertrophied hearts diseased. We must bear in mind that there are considerable enlargements of the heart in which we are not to look on the hypertrophy as a disease, but as a wise provision of nature for the prolongation of life. If a person be born with asthma, his heart will become enlarged, because, during each fit a great degree of stress and labour is thrown on the right ventricle, and consequently that portion of the heart becomes enlarged, and is hypertrophied in the course of time. The same takes place to some extent in whooping cough, in bronchitis, or emphysema, which lasts for a considerable

time. If an old man has constant cough and expectoration, and his lungs become emphysematous, hypertrophy takes place, and you will find his heart enlarged on examination after death. And are you to look on this as disease? Not at all; it is the means of prolonging his life: so also in many diseases of the valves which permit regurgitation. The practical bearing of the question is, that you should be very cautious in giving digitalis, and similar remedies, in such cases; for if you thereby weaken the heart's action, the obstacle to the transmission of blood remaining the same, you do your patient a great injury and contravene the wise purposes of nature.

I shall say nothing at present of the other diseases which produce hemoptysis, for, when speaking at a future occasion on the subject, I shall be able to show you how it may proceed from engorgement of the liver, purpura, or scurvy: at present, let us proceed to the treatment. This, of course, must vary according to the source of the disease, for when it arises from the causes last mentioned, your treatment must be very much modified. Into a description of these passive hemorrhages I do not mean to enter, and shall only remark, that it is in such cases that opium should be given from the beginning, and in no other kind of hemoptysis.

In common cases you may, towards the termination of the disease, particularly where bleeding and other antiphlogistic means have been premised, employ this remedy with advantage. We know that there are many cases of hemorrhage where opium, by its action on the nervous and vascular systems, proves a powerful styptic. Instances of this are seen in its power of arresting the flooding of parturition, and in another kind of hemorrhage to which I would point attention, I mean, that bleeding from the gums which sometimes follows the use of mercury. I remember a case of this kind, in which the bleeding from the gums was extensive, and all remedies failed in arresting it. The medical gentleman who attended it had employed every means in vain, and came to me, at twelve o'clock at night, to see if I could tell him of any thing that might be of service. I said to him, "Go home, and give two grains opium immediately, and then half a grain every hour until the bleeding stops." He seemed a little incredulous, but, however, made trial of the remedy as I directed, and before three grains of opium had been taken the bleeding ceased. This cursory explanation will, I trust, prove useful to you in practice.

In books you will find, that when you meet a case of hemorrhage, you should give immediately acetate of lead, with opium and other styptics; but remember, that in nineteen cases out of twenty, you should not give opium with or without acetate of lead in the beginning. When venesection has been performed, and the bleeding continues, then you may give it, and give it in large doses.

The remedies which I have spoken of are fitted for cases of slight hemorrhage, as that which occurs in phthisis; but when a person spits up a large quantity of blood from an affection of the bronchial tubes, or in consequence of pulmonary apoplexy, what will you do? Commence with bleeding your patient; and here a depressed state of the vascular system should not deter you from the adoption of an energetic practice. The person who gets an attack of this kind is frightened at the quantity of blood he spits; his face becomes pale, and his heart weakened in action—a fortunate occurrence—as it tends to diminish hemorrhagic excitement.

In all cases where bleeding is required, after venesection, the next remedy in which I place confidence is *ipæcacuanha*, to be given two grains every

quarter of an hour, until there is some improvement, and then every half hour or hour until the bleeding stops. Here I must remark that it is a mistake to suppose that it is the nauseating effects of ipecacuanha which alone produces a cessation of bleeding; tartar emetic nauseates too, but it will not so effectually arrest the hemorrhage. Richter, the author of the German *Elements of Surgery*, was the first who pointed out this anti-hemorrhagic effect of ipecacuanha, and Dr. Sheridan, of this city, has shown that it may be given with success in hematemesis, although it may affect the stomach so far as to produce vomiting; it exerts the same influence over hemorrhage from the bowels, as I have frequently proved in this hospital: I prefer it to acetate of lead.

I may be asked, do I reject the latter remedy? Certainly not; I give it, but only at the time I give opium; that is, toward the termination of the disease. Before I commence with the ipecacuanha I generally prescribe a purgative injection and a powerful saline purge, such as infusion of roses, sulphate of magnesia, and a little sulphuric acid. The purgative is intended in this case to act as a derivative from the lungs. We see every day the great sympathy which exists between the mucous membrane of the bowels and lungs, and we observe that in case of phthisis, and the chronic cough of old men, where purgatives have been administered in the latter disease, or where diarrhœa occurs in the former, that the discharge from the lungs is lessened.

I had an old gentleman some time ago under my care for one of those chronic coughs; he got tired of me, and went to Leamington and consulted an eminent physician residing there. He was purged very actively for a considerable time, and the expectoration and other pulmonary symptoms began to decline, and finally were entirely removed. He wrote several letters to his friends in Dublin, detailing the improvement in his disease, and abusing Dr. Graves for being unable to do any thing for him. He returned to Dublin, the shadow of his former self, cured of his cough, and died in about a month afterwards. His case strongly evidences the remarkable influence which discharges from the stomach and bowels produce on discharges from the lungs, and gives you a reason for the powerful effects of purgative medicine in hemoptysis.

With respect to digitalis, I must confess that I never use it. There is another agent which you may employ in this disease; I mean the popular remedy of giving the patient a table spoonful of common salt, and making him swallow it without water. I have seen this stop hemorrhagic effusion in the case of a friend of mine, when I was in the university, who was attacked with spitting of blood late at night. At that time the good old custom of shutting the college gates at twelve o'clock prevailed; we were in great alarm, and could get neither physician nor medicine. We gave him salt, which he chewed and swallowed, and, after three or four spoonfuls, the bleeding stopped. We may, perhaps, account for this by considering that the action of the muriate of soda on the mucous membrane of the mouth and throat is propagated to the air passage and lungs; you may, therefore, if you like, while you are tying up your patient's arm in order to draw blood, give him a spoonful of salt, as it may produce a favourable effect.

I have but little to add to what is generally known respecting the termination and treatment of hemoptysis. It is strange to what extent a spitting of blood may proceed without being fatal. I attended a gentleman from Belfast, along with the late Mr. King and Sir Henry Marsh, who expectorated blood most copiously every day for more than two months; and yet he

finally recovered, and afterwards continued to enjoy perfectly good health, to my knowledge, for five years.

Another gentleman had repeated attacks of most violent hemoptysis, for which he was frequently bled, and subjected to the usual treatment; he had likewise accompanying pleuro-pneumonia often recurring, and which produced permanent dulness of a great portion of the upper lobe of the right lung; his pulse was at all times quicker than natural; and, naturally extremely tall and slender, he had gradually become quite a skeleton, while the action of the heart was violent, and could be felt and heard over the whole chest; the upper portion of the right side of the thorax was not only dull but flattened, and in this portion respiration was very feeble, and, during the attacks of hemoptysis, mixed with crepitus. In this state he continued for two years, at times better, at times worse, rallying a little during the summer, but for the greater portion of his time confined to the house. At the end of that period I was again called to see him, and was astonished at the alteration in his countenance—an alteration produced by the total cutting away of all his teeth, the consequence of the long continued and enormous doses of mineral acids taken for the purpose of checking the hemoptysis which had so often returned. I felt quite surprised at finding him still alive, for I believed that he had died of consumption several months before.

Under the circumstances I advised a voyage to *Australia*, but, on consulting Dr. Stokes and Sir Henry Marsh, I agreed with them in thinking his case too hopeless to allow us to permit such an experiment to be tried. Another year passed away, when we were again called to see him, and found matters apparently unaltered—no improvement, no aggravation either of the physical signs or constitutional symptoms; we now all agreed in thinking that as he had so unexpectedly survived, the voyage to Australia might be permitted. Accordingly he sailed in September, and perfectly recovered in New Holland; at a subsequent period he unluckily became ardently engaged in an attempt to convert some of the South Sea Islanders, by whom he was killed and devoured. His was in truth a remarkable recovery, not only from repeated and terrible attacks of spitting of blood, but from many of the constitutional and physical symptoms of advanced phthisis.

While this sheet was going through the press, I received a letter from a gentleman whom I had recommended to go to Australia for an attack of hemoptysis; as it not only bears valuable testimony to the advantage of that climate in this disease, but also contains most interesting information about one of the most rising colonies of Great Britain, I make no apology for introducing the greater portion of it here. The letter is dated from Melbourne, Port Philip, March 1st, 1848 :—

“In 1839 I consulted you for an attack of hemoptysis, when you strongly recommended me to come to this colony; and previously to my sailing you expressed a wish that I should write to you as soon as I had sufficient experience of the effects of the climate on my constitution.

“I fear I can scarcely offer any sufficient excuse for so long a silence; however, a residence of upwards of eight years enables me to speak with greater confidence of the country and its climate than I could have done had my experience been less.

“Our voyage occupied 108 days, during the entire of which I enjoyed excellent health; in fact, I never suffered one hour’s illness of any description the entire time; and, on landing, my constitution seemed completely renewed, and I had increased about fourteen pounds in weight.

"On our arrival, the colony was in its infancy ; and we were subjected to all the inconvenience or rather hardships arising from this cause. No lodging of any description could be obtained. After a residence of upwards of a month in a tent, I purchased a sheep station in the bush, about fifty miles from town, where we have since resided. For some time my health remained very good, but unfortunately I overrated my strength, and, urged by the 'auri sacra fames,' made extraordinary exertions to make my new concern productive. When travelling over one of the large plains with which this country abounds, with my drays, I was overtaken by heavy rain which in a few minutes wetted me to the skin. I was wet for upwards of seventeen hours ; I did not subsequently take the precautions prudence would suggest, but continued my avocation as usual. A slight affection of the chest was the result ; nothing however very alarming until about four months, when I overstrained myself breaking in a young horse, and immediately observed a little blood in my mouth, and during the night I was attacked with a violent renewal of my former complaint, which continued for ten days or a fortnight. At the end of that time I was enabled to go to town, when I consulted a doctor. He examined my chest carefully, without being able to detect any disease ; and stated that he thought that by care my health would be restored. I speedily recovered from this attack, and up to the present have continued in the enjoyment of good health ; I have had occasional colds, and sometimes have been troubled for a short time with dyspepsia ; on the whole, however, I have every reason to be thankful. I am never troubled with cough, and, with the exception of a few days confinement, caused by hemorrhoids, have never kept my bed a day since I arrived here : between six and seven years have elapsed since the last attack of hemoptysis. I lead an active life, but carefully avoid any *violent* exertion, mostly spend some hours on horseback every day, and can ride fifty or sixty miles at a stretch without fatigue. I perfectly recollect, when advising me to leave Ireland, you stated that should I even *descend* ten or twelve degrees in the scale of society, such a consideration should not deter me from taking this step. I am happy to inform you that I have, *at least*, maintained my '*grade*,' while my capital has increased in a far greater ratio than I could have expected had I remained at home.

"It is true a period of great depression, the result of over speculation in land, has been experienced, during the continuance of which the settlers had much to encounter ; but the colony is now in a prosperous state. The greatest drawback we experience is the want of an adequate supply of labour to develop the resources of the country. We pay married couples £40 to £50 per annum, single men £28 to £30 ; find them lodging and as much of the best food as they can consume ; the ration for each person weekly is—10lbs. flour, 12lbs. meat, 4oz. tea, 2lbs. sugar, vegetables, &c., but this seldom satisfies them ; we have generally to give more ; servants are so scarce, that they are in a certain degree, masters, and we are well accustomed to submit to insolence, disobedience, and idleness. It grieves me to read of the misery and starvation at home. What a blessing to both countries if government would send us 20 to 30,000 of these poor people annually. It would enable us to carry on our operations in a satisfactory manner, and what a change for the poor people themselves, instead of being a burthen to others ! The moment they landed here, they would become independent members of society.

"As I am aware you are consulted by numbers suffering from complaints of the lungs who might wish to try this climate, I will say a few words about the country and the present prospects of emigrants. The climate is particu-

larly dry, the degree of heat very variable. I have seen the thermometer change from 54° to 105° in two days, but owing to the absence of humidity in the atmosphere, the heat, although very great at times, is by no means so oppressive as at home (I still call Ireland home), when the thermometer stands 20 to 30 degrees lower. I have been obliged to ride a long journey when it stood at 114° . From the great and sudden variations in the temperature rheumatism is prevalent; but I consider the climate decidedly favourable to people with delicate lungs;—one case I will mention. A young gentleman, son of a Scotch baronet, arrived here some time after me; for several years before he left Scotland he describes his life as having been quite a burthen; he suffered frightfully from asthma—was only kept alive by the greatest care, spending a considerable part of his time in bed. On him the voyage and subsequent residence here acted in a manner almost miraculous. He resided three or four years at my station; he has now a station of his own, and is a stout able young man, fit to endure any fatigue—he has never suffered one week's illness since his arrival here, now nearly eight years. Delicate people arriving here, feeling invigorated by the voyage, make too free with themselves either by over exertion (as in my own case), or by the use of stimulants, and do not derive that benefit from the change they otherwise would; a bush life will also answer them much better than a residence in town. Melbourne, our chief town, is very unhealthy, being in the vicinity of some large marshes. Geelong, the second town, is built on rising ground, close to the sea, and is considered healthy.

"Intemperance prevails to a great extent: I have seen as many as six deaths reported in one week from 'delirium tremens.' Lunatics (or cranky people, as they are colonially termed) are frequently met, owing to excessive drinking and exposure to the nearly vertical rays of the sun, often whilst intoxicated. Last October (our spring) almost the entire colony was visited by an influenza which few escaped; in some cases it proved fatal. Fever and dysentery occasionally are prevalent in town; they can generally be traced to local causes. Disease of the heart is not uncommon; some attribute it to excess of smoking and drinking inordinate quantities of green tea—practices indulged in to a great extent.

"I like the settler's life uncommonly well; my principal occupation consists in riding to out stations, looking after the shepherds, and generally superintending operations."

In the case of another gentleman attended by me and Dr. Stokes, suffocation had nearly resulted in a manner not hitherto noticed by authors. This gentleman had been ill for many days, had been very often bled, and was much exhausted. I had visited him in the morning, and had but just left him when a fresh burst of blood took place. Contrary to my orders he was again bled, and when Dr. Stokes arrived in about three quarters of an hour afterwards, he found him collapsed—almost asphyxiated, and struggling for life; the right side of the chest expanding and contracting energetically, *the left almost fixed and motionless*. Dr. Stokes immediately changed his position, and gave him a glass of wine, when he made one more effort *and violently expectorated a coagulum consisting of fibrin, in some parts nearly colourless, forming a complete solid mould, answering to the left bronchus and its ramifications, down even to some of the minuter tubes*. After this he rallied, and for the time was tranquil.

In violent hemoptysis medical men are too apt to have recourse to venesection over and over again, bleeding from the arm every time the spitting

of blood returns. Strongly as I advocate the necessity of using the lancet boldly when a patient is suddenly attacked with a copious discharge of blood from the lungs, yet I conceive that much injury is frequently inflicted by a too frequent repetition of the venesection. If, after two or three free venesections, performed in the commencement of the disease, the pulse still retain its hemorrhagic character unsubdued by the loss of blood, and hemorrhage still exhibits a tendency to return (usually at a certain hour), the practitioner may rest assured that he will not be able to prevent that tendency by further venesection. In cases, then, where bleeding from the arm is found neither to prevent nor diminish pulmonary hemorrhage, we must not add to our patient's exhaustion by repeating it, and must steadily refuse when pressed to do so by the patient himself or his friends; *for the prejudice is general that bleeding from the arm is proper whenever a patient spits blood in quantity.*

It is true that the cases which are not benefited by bleeding are invariably of a most dangerous nature, and will terminate in most instances fatally, no matter whether we bleed or not. Still, when we have once convinced ourselves that bleeding has ceased to be *evidently beneficial* either in arresting or preventing the fits of hemoptysis, we must not hazard our patient's chance of recovery, however slight; we must, on the contrary, husband his strength, and use the means generally recommended in so called passive hemorrhage: acetate of lead in frequent doses, two grains every hour, with one-sixth of a grain of opium; large doses of sulphuric acid with or without alum, small doses of oil of turpentine—ten drops every quarter of an hour, given in cold water, while the spitting of blood continues; and finally, in unmanageable cases, ipecacuanha given in nauseating doses, constantly repeated until full vomiting is produced over and over again.

Such are the means which the physician will employ internally in these almost desperate cases: when much debility ensues from repeated loss of blood, wine and opium may be given boldly. No topical bleeding has appeared to me so useful as a constant oozing of blood from the hollow of the throat just above the sternum. The efficacy of leeches applied to this situation in bronchitis and other diseases attended with harrassing cough was long ago pointed out by Dr. Osborne: and I was induced, from frequently observing the admirable effects of this practice, to extend its application to cases of hemoptysis, and I am happy to say that it has proved a most excellent *adjuvant* in arresting the progress of this frightful complaint. When the cough is very teasing, and the quantity of blood expectorated very large, six leeches should be applied every sixth hour until decided relief is obtained; in less severe cases a smaller number applied daily will be sufficient. When the disease is obstinate, a succession of large blisters to the chest may be applied with advantage.

With respect to the danger of phthisis supervening in cases of spitting of blood, it is remarkable that in recent cases of hemoptysis we cannot predict the event with any degree of certainty; for it often happens that the chest is every where clear on percussion, and free from morbid rales, and pulse natural and cough trifling, in the very individuals that at some future period become subjects of phthisis. In other persons a violent attack of hemoptysis recurs over and over again during several weeks, and then ceases, leaving them much debilitated but without cough, morbid stethoscopic phenomena, or fever.

The medical attendant must in such cases be very guarded, for however flattering the appearance may be, convalescence will scarcely appear to have

commenced when the pulse will begin to rise, cough set in, and in a few days afterwards manifest dulness and crepitus will be discovered under one of the clavicles ; in fact, rapid consumption has commenced. In other patients, after an attack is apparently perfectly recovered from, no symptom of phthisis exhibits itself until the constitution is worn out by repeated losses of blood, when tuberculization commences suddenly and ceases rapidly.

DISEASES OF THE HEART.

LECTURE XLVII.

PERICARDITIS.

GENTLEMEN,—Recent writers have contributed much to cardiac pathology, and, if we credit all they assert in their books and essays, have left but a scanty harvest to be reaped by their successors. My own experience, however, has been very unsatisfactory, inasmuch as it has not unfrequently appeared at variance with the rules laid down by authors, and I have consequently been led to believe, that the means of distinguishing diseases of the heart from each other have not been yet brought to the alleged degree of perfection, and indeed many reasons induce me to conclude that such perfection is unattainable, for we can localize disease of the heart only by the following means : first, by the sort of derangement each induces in the circulation and its associated functions ; secondly, by the change such disease produces in the motions of the heart as felt by the patient, or as perceived by the eye or hand of the observer ; and, thirdly, by the morbid sounds developed during the heart's action.

The numerous observations and dissections I have made have convinced me, that the functional derangements produced by diseases of any part of the heart, are not in all cases sufficiently characteristic to enable us to make out whether the disease be situated in the auriculo-ventricular or semilunar valves ; nay, it has frequently occurred to me, that all the symptoms supposed to be indicative of disease of the right side of the heart have been occasioned by diseases of the left side, and *vice versa*. So far, indeed, from symptoms being always precise enough to point out the seat of the disease, they are often insufficient to indicate its very existence, an assertion proved by numerous specimens exhibited at the Pathological Society.

The chief means of distinguishing which of the valves of the heart is diseased are derived from the supposed direction of the sound. This is by far the more useful diagnostic mark we possess, and by it we may often, but not always, distinguish disease of the right from disease of the left side of the heart ; and we may even occasionally, though not always, distinguish diseases of the auriculo-ventricular from those of the semilunar valves. Another means of diagnosis much relied on is taken from the morbid sound accompanying, and therefore being a perversion of the first or of the second sound of the heart ; but as at each motion of the heart, valves are opened and valves are closed, a morbid sound may be produced by any change of structure which permanently prevents the complete opening or shutting of the valves, and consequently the same sound may arise either from changes of structure obstructing the advancing blood, or from changes permitting regurgitation ; in other words, it is impossible to judge at the moment a sound occurs, which of these is its cause.

As to the motions of the heart, their derangement scarcely ever indicates the seat of disease with any precision.

In illustration of this position, I shall refer briefly to some points connected with the case of an old man in the chronic ward, who died lately of inflammation of the lung. At the period of his admission, he had been ill for some time; both sides of the chest, but particularly the left, sounded dull on percussion; he had extensive bronchial respiration and *crachat rouillé*; in fact, it was a very bad case of double pneumonia, a disease which at his time of life is very seldom cured. We did all we could to arrest the progress of the disease; we cupped him over the left side, gave him mercury so as to affect his system, and applied blisters to both sides of the chest, anteriorly and posteriorly. These were the only active measures which remained for us to employ; from the man's age, the weakness of his pulse, and the duration of the disease, we could not venture on general bleeding; we could only attack the disease with local depletion, mercury, and counter-irritation.

All these remedies were applied with great diligence, but unfortunately proved incapable of checking the disease. His cough continued, respiration became more difficult, and though his mouth became affected, the dulness on percussion increased day after day; and though the patient was removed into a warmer room, and every attention paid to his comfort, it was evident that he was getting gradually worse. About a fortnight after his admission, his expectoration assumed the purulent character, and it was obvious that the lung had passed from the stage of hepatization into that of interstitial supuration. He took the decoction of polygala, with Iceland moss and syrup of white poppies, but without any relief to his symptoms; the disease increased, and he died on the nineteenth, sixteen days from the date of his admission.

On examining the lung, the ordinary phenomena of pneumonic inflammation were discovered; parts of the lung were in the state of grey hepatization, others were infiltrated with pus, and broke down easily under the finger. We found, too, that he had not only pneumonia, but also extensive pleuritis and *pericarditis*. The pleurisy had probably commenced about eight or nine days before his death; the pericarditis was of an origin somewhat more recent.

You may ask why I did not recognise these affections before death. The reason is twofold. The man was in a very weak and hopeless condition, and both sides of his chest were sore from the blisters; these are circumstances under which I have strong objections to torment a patient with examinations, and therefore I made none in this case. The other reason is, that in a patient who has been greatly reduced by some acute disease, new inflammations are apt to spring up with great rapidity, and with still greater latency. I remember a very remarkable case of the same description which occurred at the Meath Hospital, where the patient had a very extensive inflammation of the pleura, with exudation of lymph and effusion of a considerable quantity of fluid, and yet not one of these symptoms was recognised during life.

This man, you will recollect, never complained of pain in the side, nor had he orthopnea, irregularity of pulse, lividity of countenance, or any of those symptoms which are looked upon as indicative of pericardial inflammation; yet on dissection we find the pleura extensively engaged, lymph exuded on its surface, and a small quantity of sero-purulent effusion in its cavity; and on examining the heart, we find the pericardium covered internally with an extensive gelatinous layer, consisting of lymph and puriform fluid intimately mixed together. You perceive, then, in this case, a confirmation of what I have so often insisted on, that pleuritis may occasionally run through its course, unaccompanied by pain in the side; and also that inflammation of the

pericardium may exist without orthopnoea, irregularity of pulse, lividity of countenance, or fainting, symptoms formerly believed to be more or less manifest in every case of pericarditis.

The pathology of pericarditis has been investigated but lately with the care it deserves: the labours of our French brethren were in the first instance mainly instrumental in producing its present degree of advancement. In England some valuable observations have been contributed by Drs. Hope, Latham and others, but they have been more than rivalled by the contributions to the diagnosis of this disease which have appeared in the *Dublin Medical Journal*.

Pericarditis is a disease of quite as frequent occurrence as pleurisy, and often, as in the present instance, associated with the latter; on the whole, I do not consider pericarditis as more dangerous or more difficult to cure than pleuritic inflammation, neither does its existence seem less easily ascertained. Some cases, it is true, are extremely insidious in their nature, but the same may be said of cerebritis, pneumonia, and all other phlegmasiæ; usually, however, a careful and attentive physician will at once detect the existence of pericardial inflammation.

When he finds that a patient has been exposed to causes capable of exciting fever, that he has been liable to gout or rheumatism, or has been actually attacked with either, then will his attention be directed to the heart; if he perceives that its action is either unusually violent or irregular, or if he observes that uneasiness and oppression of chest are complained of to a degree not to be accounted for by any pulmonary lesions present; if he finds that his patient has the appearance of a person labouring under some serious disease, and that none such exists in the lungs themselves, then will he be called on to examine the region of the heart with the greatest accuracy.

One of the most common symptoms of pericarditis is tenderness in the intercostal spaces over or near the heart. This is not perceived in many cases until pressure is made with the fingers. Tenderness occurs in many who do not complain of pain or stitch in this portion of the chest; when the latter co-exists with tenderness, the presumption in favour of the presence of pericarditis is still greater. The pain and uneasiness about the heart are, as Dr. Elliotson remarks, generally increased by pressing in the left hypochondrium upwards towards the diaphragm. I must refer you to Dr. Stokes' and Dr. Mayne's papers in the *Dublin Journal* for an analysis of the physical signs derived from percussion and auscultation, and also for an explanation of the reasons why the general symptoms are subject to such striking variations in this disease.

In some you have, soon after its commencement, lividity, orthopnoea, and tendency to fainting, combined with irregularity of pulse; in others the disease runs its whole course, whether it terminates fatally or in health, without any of these symptoms; in fact, no disease is more inconstant in its characters, and none requires more the aid of investigation by means of physical signs, which, if well conducted, seldom fail to clear up all doubts. Of one thing I am certain, that inflammation of the pericardium in a person of tolerably good constitution may be generally arrested in its progress by bleeding, frequent leeching, and scruple doses of calomel. It is mere trifling on such occasions to have recourse to tartar emetic, digitalis, or the common antiphlogistic remedies. Instantly use every effort to produce the full action of mercury on the system. Apply the ointment to the axillæ; smear it over the inside of the thighs; make your patient respire the vapour of hydrargyrum

cum cretâ as often in the day as he can bear the process, and be assured that you are pursuing the proper course.

Well has it been observed by Dr. Elliotson, when speaking of a fatal case of pericarditis :—"The only chance I had to save the life of this person would have been to have pushed the mercury further. I am quite sure that more lives are saved in inflammatory diseases by carrying mercury to a great extent, than by merely having recourse to it for the simple production of ptyalism." It is to the want of decision in the practice of the French physicians—it is to their want of confidence in mercury—that we must attribute the greater mortality of pericarditis in Paris than in Dublin ; for most of our patients recover, most of theirs die. Of course, gentlemen, the most unfavourable of all cases is where pericarditis attacks a person debilitated by previous sickness, such as fever, dropsy, &c. Here the disease runs a very rapid, and too often a fatal course, and cannot be controlled. One practical remark I cannot avoid mentioning here—before effusion takes place into the pericardial sac, never apply a blister ; after it has occurred, repeated and severe blistering over and about the region of the heart is one of our best remedies.

Some years ago I had an opportunity of studying a case which subsequently proved to be an example of inflammation of the muscular substance of the ventricles, ending in suppuration and the formation of a large abscess in the ventricular parietes. This is a very rare occurrence, for the simple reason, that inflammation of the substance of the heart generally proves fatal before pus is formed. A very robust gentleman, aged fifty-five, from the neighbourhood of Wicklow, came to Dublin for the benefit of advice. He had complained of cough for many months, together with dyspnœa and palpitation of the heart ; latterly he had become anasarcaous, and suffered much from distress and pain referred to the region of the heart. This pain formed the chief subject of his complaint, and darted over the chest.

On examination, I immediately detected hypertrophy and dilatation of both ventricles, and I announced the existence of valvular disease, inasmuch as a loud and extensive *bruit de soufflet* existed, together with a remarkable *frémissement cataire*, and a very irregular pulse. This opinion was delivered in the presence of Dr. Sherwood and Mr. Hetherington. Our patient returned to the country, where he continued to complain of pain in the heart that was at times excruciating. He died suddenly at the end of a few weeks.

The results of the post-mortem examination were kindly communicated to me by Dr. Sherwood. There was considerable dropsical effusion into both pleural cavities, and the heart was exceedingly enlarged. "On slitting open the pericardium, I found (says Dr. Sherwood) that the heart adhered to its entire surface by means of bands of coagulable lymph, which were easily broken down except at the apex of the heart, where they were very strong and firm. In attempting to break them, more than two ounces of purulent matter escaped into the cavity of the pericardium, which caused me to institute a very close examination of the parts, in order to discover whence the pus came. I found a small rent in the apex of the heart, immediately below the floor of the left ventricle, exactly in the situation of the firm adhesions before spoken of. On enlarging this opening, I discovered a cavity in the substance of the heart, with a regularly defined wall, capable of containing more than two ounces of fluid. The walls of both ventricles were enormously thickened ; all the valves were more or less affected ; but the chief disease lay in the semi-lunar valves of the aorta, which were nearly altogether ossified."

This case was extremely remarkable, and exhibits an example not merely of the dropsy and dyspnoea which so usually attend hypertrophy and valvular disease of the heart, but also of a combination of chronic pericarditis, and chronic inflammation of the muscular substance of the ventricles, *ending in the very rare termination—abscess.*

It is deserving of notice that, in many cases, increase of energy in the heart's action precedes the appearance of the more characteristic and essential signs of pericarditis, a fact seeming to denote that the disease often commences in the muscular substance of the heart, and from that extends to its investing membrane. Some years ago, Sir Henry Marsh, Dr. Lees, and I saw a case strongly illustrative of this opinion. An athletic young gentleman contracted a very acute rheumatic fever from cold; the pulse was very high; the heat of the skin excessive, and the pain, tenderness, redness, and swelling of the joints were of more than ordinary severity. He would not allow himself to be bled; we employed an antiphlogistic treatment, and were constantly on the watch to detect the first approach of pericarditis. One night Dr. Lees detected intermission of the pulse; this, in a few hours, was followed by increased strength of the heart's pulsations, and finally pain was felt. In many other instances I have observed irregular action of the heart to be the first signal of the approaching pericarditis; it is of importance to remember this, for it teaches us to attach more value to this symptom as a precursor of inflammation; and, besides, it proves that irregular and intermitting pulse may, in pericarditis, precede effusion, and not necessarily arise from the impediment which the latter, when it takes place, must throw in the way of the heart's action.

No disease requires more attention than pericarditis, whether we consider the importance of the organ engaged, the frequency of its occurrence, or its often insidious and latent progress. In studying this affection, we can derive little or no assistance from ancient or even modern authors, except of the most recent date; for inflammatory affections of the heart and its investing membrane were either completely overlooked or grievously misunderstood, until long after the investigations of Laennec had disclosed the advantage of physical signs. It was then discovered that, contrary to the received opinion, pericarditis and endocarditis must be ranked amongst common affections, and that they are accompanied, during their origin and progress, by physical signs highly characteristic, and of such importance, that they enable the practitioner not merely to distinguish the first stages of the attack, but to anticipate its origin and extinguish it at its very commencement. The truth of this assertion is proved by every day's experience; and we have now the satisfaction of knowing that inflammation of the heart and its membrane is not necessarily either fatal or intractable.

Still, however, as I have already remarked, we must not suppose that recent investigations have satisfactorily established the value or the meaning of all the physical signs that can be detected from the commencement to the termination of inflammatory affections of the heart, for the nature and position of the organ engaged, whose motions can be seen, felt, and heard, occasion changes in the physical signs, which alter and vary from stage to stage, from day to day; nay, sometimes from hour to hour. The study of variations so numerous, and yet so important, will require the co-operation and well-weighed testimony of many observers; with a view of promoting the cultivation of this fertile field, I beg your particular attention to the following remarks, which will, I trust, contribute to enlarge and render more accurate our views in certain points connected with this department of pathology. Let

me first remind you that the sounds produced by pericarditic friction, closely resembling those derived from valvular disease, as so well proved in the following case, and then point out the means of diagnosis :—

A man named Mulcahy, aged 23, was admitted December 1st. He stated that he had led a very intemperate life, his usual allowance being from six to eight glasses of whiskey daily. He earned a livelihood by playing on a wind instrument, and after a few hours' performance used to suffer from distressing palpitations and pain about the heart. At times he was affected with a sense of fainting, which usually terminated in vomiting. He followed his avocation till about two months before admission, when he was attacked with rheumatism, and shortly after with great dyspnoea, anasarca, &c.

On admission, his surface was cold, lips and hands livid, feet swollen, and belly distended. He suffered from dyspnoea ; cough, with bloody expectoration ; his eyes were staring and protruded ; face tumid ; jugulars turgid, but not pulsating ; pulse 70, regular, but small and weak ; respiration 28 ; urine scanty and highly albuminous ; extreme debility. The left lobe of the liver occupied the epigastric region, in which situation alone pressure caused pain. He had slight pain in the right shoulder. There was no dulness except over the lower and back part of both lungs, where the respiration was weak and accompanied by a moist crepitus ; the cardiac region sounded duller than natural.

The motions of the heart were evident, strong, diffused, and accompanied, not by the two natural sounds, whose duration and tone are so different from each other, but by two loud, prolonged sounds, of equal duration but of different tones ; the first was a *bruit de scie*, the second was a musical sound closely resembling the noise made by rubbing the moistened finger on glass. These phenomena were only heard at the base, and were quite inaudible at the apex of the heart ; but they extended from the base along the aorta, and were very distinct under both clavicles, particularly the left ; they were not heard either in the carotids or in the cervical portions of the subclavians. In no situation was there the least *frémissement* ; no thrill in any of the arteries of the neck or upper extremities ; no abnormal sound over the abdominal aorta. The next day, his condition was much the same, except that instead of the musical sound we had a well-marked and loud *leather creak*, very much prolonged, and masking the normal second sound, and a strong *frémissement* was felt over the base of the heart ; there was no increase of dulness. The pulse continued regular, 72 ; the respiration only 20 ; but he was evidently sinking, and on the following morning he died.

The following is the result of the post-mortem examination :—General anasarca ; both pleural cavities occupied by a large quantity of fluid, upon which the lungs floated : on the left side the heart was bedded in the lung, and both were carried into close apposition with the internal parieties of the chest, so as to bring the heart into extensive contact with the sternum and costal cartilages. There was no fluid in the pericardium, but its surfaces were coated with lymph, shreds of which extended from one surface to the other at the base of the heart. In this situation, the lymph appeared to have been very recently effused ; it was easily removed, and presented an irregular honey-comb appearance. At the apex of the heart, the opposed membranes were firmly united. The heart itself was hypertrophied and both its ventricles dilated. All the valves, the endocardium, the aorta, and pulmonary artery were quite free from the least trace of disease.

There were many particulars connected with this case that might have led a practitioner to consider it was one of valvular disease. From the man's

own account it appeared that he had for a long time suffered from palpitations, faintings, dyspnoea, anasarca, &c. ; and his mode of life and occupation frequently produce that affection ; but the physical signs were more likely to mislead than either the history of the case or the general symptoms. He had an enlarged heart, detected by increased dulness, two prolonged sounds masking the natural sounds of the organ, not audible at the apex, but exceedingly distinct over the origin and course of the aorta, one of these sounds having a perfectly musical tone. At our first visit these circumstances, taken in connection with the absence of *frémissement* over the heart, or of pain or uneasiness about that region, together with the state of the pulse, might have easily led to a wrong diagnosis.

But, on the other hand, the phenomena differed in many points from those *supposed* to be indicative of disease of the aortic valves. The sounds, though heard to a great distance, did not follow exclusively the course of the aorta or its trunks ; they were not heard either in the carotids or subclavians in the neck, nor was there any thrill or visible pulsation in these vessels ; and, in addition, the sounds appeared, when examined by the stethoscope, to be derived from a superficial source, and were almost equally intense over a large space. These were the circumstances that induced me to look upon the case as pericarditis.

The next day the matter was put beyond doubt, for the musical sound had disappeared, and was replaced by a leather creak, attended by a strong *frémissement* over the base of the heart. During all this time the pulse remained at 72, was perfectly regular though weak ; but the action of the heart was much stronger than natural, a circumstance frequently observed in this disease.

The manner in which the heart was pushed against the bony parietes of the chest, satisfactorily explains the fact of the sounds being heard to so great a distance, the organ itself at the time acting with more than usual vigour. But what were the conditions that gave rise to the musical sound ? Let us reflect for a moment upon the actual state of the heart and pericardium in this case. If we examine the parts when removed from the subject, seeing the heart collapsed, and the pericardium loosely surrounding it, we cannot then understand how such sounds could be produced by the motion of the one within the other. But such is not the condition of these parts in the living body : the pericardium is there firmly fixed at its apex and base ; it is tense and stretched like the parchment of a drum ; and if in this bag we have an enlarged heart moving slowly backwards and forwards, the heart itself being turgid with blood, and rigid from the contraction of its muscles, we have the conditions that most probably gave rise to the sounds described, the true intensity and loudness of which would of course be altered and vary according to the varying condition of the two surfaces rubbed together. And it is well known that membranes, similar in structure to that covering the heart and lining the pericardium, have their surfaces altered by inflammation remarkably and rapidly, being at one time smooth and dry, and then becoming quickly smooth and moist, and afterwards covered either with puriform matter or denser lymph, which latter may coagulate, forming on the rubbing surfaces either a punctiform roughness, or ridge-like pseudo-membranous projections ; and it is evident that each of the conditions now enumerated must alter the tone of the sounds produced by the friction of the opposing surfaces, or affect their loudness and duration.

Pericarditic sounds may therefore be as loud *and as prolonged as valvular sounds*—a fact hitherto scarcely sufficiently dwelt upon by pathologists, indeed,

by most disputed altogether; pericarditic sounds, moreover, like valvular, may be likewise accompanied by *frémissement*; and, consequently, in endeavouring to make the diagnosis between the two sets of sounds, we must seek for means of distinguishing them, not in their loudness, their tone, or their duration—not in the presence or absence of *frémissement*, but in the fact that pericarditic sounds appear to the attentive ear to issue from a more superficial source, are much more extensively diffused, and are almost equally audible in regions of the chest very distant from each other, as, for instance, under both clavicles. Pericarditic sounds, too, undergo much quicker alteration in character than valvular, which, when once formed, are almost always permanent; and, to conclude, pericarditic sounds seem to be conducted by the solid parietes of the chest, while valvular sounds are chiefly propagated by the contents and parietes of the great vessels.

The following case, published by Dr. Watson in the *Medical Gazette*, illustrates in a strong manner the peculiarities of pericarditic sounds which I have just alluded to. He says that in his case the murmur “represented very exactly the upward and downward action of a saw on rough wood, was by far the loudest sound of this kind that he ever heard. It was distinctly audible over the *whole of the chest*, both before and behind, only somewhat fainter as the distance from the heart became greater: with your ear upon either scapula, you might have supposed that you were listening to the deep buzzing vibrations of the larger string of a bass viol.” At the *post mortem* examination it was found that the pericardium was every where, except at its posterior part, covered with a “thin coat of *firm* gray lymph, quite rough with minute papillæ, projecting from almost every point of its surface, of an almost *horny consistence*, harsh and resisting to the touch.”

The following case is, in many particulars, extremely worthy of notice, and is unique, so far as my experience goes, in this, that the rheumatic inflammation seized the pericardium *before* the joints. This fact proves that physicians have been hitherto too prone to attribute pericarditis, carditis, or endocarditis, to metastasis, a doctrine applicable to some cases, but by no means to all, for, as in the present instance, the first symptom of a rheumatic inflammation may occur in the pericardium before any of the joints are affected; and in the case of Reddy, which I shall next refer to, the pericarditis began at the very time that articular inflammation had reached its maximum intensity.

But if the heart and its investments may be thus attacked at the very beginning, or during the acme of rheumatic fever, it is easy to believe likewise that inflammations of the heart and membranes may commence for the first time towards the termination of rheumatic fever, when the articular inflammation has almost disappeared, and, under such circumstances, a superficial view of the phenomena discovers the easiest explanation in metastasis; neither is it unimportant to observe, that the fever usually accompanied by inflammation of the joints, and termed rheumatic fever, is a fever *sui generis*, and as readily distinguishable from the fever caused by inflammations, as is the fever of typhus, small-pox, or measles. In truth, in rheumatic fever the quickness of the pulse, heat of the skin, tendency to profuse sweating, debility, restlessness, and thirst, may all exist without any inflammation of the joints, and may be resolved without such inflammation ever occurring; as I have witnessed in several well-marked cases of individuals liable to rheumatic fever, and who had previously suffered from attacks of fever with arthritis in the usual form, and subsequently, on exposure to cold, were seized with symptoms of pyrexia, which, in intensity, duration, and every other particular,

were identical with their former fevers, save and except that from beginning to end not a single joint was inflamed.

But, it may be asked, am I correct in calling such a fever *rheumatic*? My answer is that in the instances referred to the urine was exactly the same as in former attacks, and the sweats, whose abundance by no means alleviated the fever, had a peculiar odour which never occurs except in rheumatic fever; another characteristic mark was likewise observable, viz:—that though the fever was intense, thirst considerable, and tongue furred, yet the appetite was not remarkably impaired, at least at the commencement of the fever. These considerations are of practical interest, and prove that in the treatment of acute rheumatism we cannot hope to cure the fever directly by means which merely tend to get rid of the articular inflammation. *As arthritis may exist without rheumatic fever, so rheumatic fever may exist without arthritis; when combined, they each aggravate the other, but the cure or disappearance of one does not necessarily determine the removal of the other.*

The case is that of a woman, aged 19, named Fitzgerald, who was admitted September 1st into the hospital, labouring under febrile symptoms of a trifling character. She complained principally of headache, with loss of sleep. Her pulse was quick and her tongue foul. For these symptoms she was treated, and everything seemed going on favourably till September 5th, when the following observation was made:—

Face pallid and anxious; breathing hurried, 40; *alæ nasi* dilated at each inspiration; pulse has fallen from 90 to 59, very *weak, irregular, and intermittent*; no cough nor pain in the chest; no palpitation; physical examination did not detect disease anywhere except over the cardiac region, in which there was a distinct friction sound, accompanying both sounds of the heart. It was most intense at the apex of the organ, and appeared to accompany the first sound more particularly. It was attended with a very perceptible *frémissement*; in no situation had it the character of a "*soufflet*." The impulse of the heart was exceedingly strong, and its sounds very loud. She was cupped over the heart, and put on the use of calomel and opium, five grains of the former with one of the latter, every fourth hour.

September 6th.—Countenance much improved; pulse 72, full and soft, but still irregular and intermittent; respiration 28; *alæ nasi* not dilated; no pain in any part. The *friction* sound is still very evident, though less intense, and particularly at the apex of the heart; no dulness, impulse stronger than on yesterday, sounds of heart very distinct. Blister over the region of the heart, and the pills of calomel and opium to be continued.

7th.—Mouth sore; pulse 76, small, soft, regular, *without any intermission*; respiration 28; countenance good; impulse and sounds of heart are both good; the friction is barely audible, being most intense over the right side of the heart. Pills to be continued.

8th.—No trace of *frottement*; the sounds and impulse of heart natural: pulse 80, regular and soft.

10th.—Was last night attacked with pains in the loins, knees, shoulders, wrists, and ankles. These joints are now exceedingly painful, red, and swollen. Pulse 80, small and soft.

It is unnecessary to go through the details of the case; suffice it to say, it ran the usual course of severe articular rheumatism, and lasted for about ten or twelve days. The heart was daily examined, and exhibited no sign of disease throughout. The treatment consisted of opium in large doses, *one grain every third hour*; it succeeded admirably, and seemed to expend itself solely

on the disease ; for during the whole time she was taking it, it never produced contraction of the pupil, headache, hot skin, furred tongue, or constipation.

M. Chomel has long since shown, that when the pulse becomes suddenly feeble, faltering, intermittent, or unequal, without any apparent or adequate cause, this sign, especially if attended with the usual concomitant symptoms of an obstructed circulation, affords the strongest evidence of pericarditis ; and Dr. Hope asserts, that on this sign alone he has seen M. Chomel found a successful diagnosis in the last stage of a typhus fever, where the symptoms were extremely complex. Chomel's observation is, I think, correct, and leads me to discuss the motions of the heart in pericarditis and carditis more at large. *In some cases of pericarditis the heart's action becomes increased in strength for many hours before any physical sign of pericarditis can be detected, and before any pain is felt in the region of the heart.* In such cases, when the usually acknowledged symptoms of pericarditis are added to this already existing augmented action of the heart, the latter goes on increasing, and finally becomes excessively violent, and does not begin to decrease notably for several days after the peculiar symptoms of pericarditis have disappeared.

This course may be, perhaps, explained by supposing, as in the case which I mentioned at the beginning of this lecture, that the muscular substance of the heart became inflamed before the pericarditis came on, and continued to remain so after the pericarditis had subsided ; for it is a general principle, that superadded inflammations generally yield to remedies, before the fundamental and primary disease exhibits a manifest improvement. In rheumatism, the action of the heart should be carefully watched, and when it becomes increased without any apparent cause, that occurrence alone is sufficient to warn us of the approaching danger.

This point has not, I believe, attracted the attention it deserves, and its importance is enhanced by the fact, that an increase in the heart's action may not only precede the physical, but the constitutional symptoms of inflammation of that organ or its membranes, and consequently may be the only beacon to forewarn us of a danger still beyond the visible horizon, and undiscoverable by any other means. Connected with the motions of the heart is the remarkable disparity that exists between the energy of the heart's action and the strength of the pulse ; for it often happens that the pulsations in the cardiac region are violent, while the pulse is weak and thready at the wrist. This disparity consequently prevents us from deciding on the propriety of antiphlogistic measures by examining the pulse, a circumstance which shows us how erroneous *a priori* conclusions are in medicine ; for surely it is in inflammation of the heart and its membrane that we should have expected the pulse to be our most certain guide.

In pericarditis it was formerly supposed that the pulse was invariably accelerated, except towards the close of the disease, when the vital powers of the heart became exhausted, or its motions impeded by effused fluid. But this is so far from being correct, that in several of my cases it will be found, that the pulse was not quicker than natural from the beginning to the end of the disease ; and in the boy Reilly, whose post-mortem examination I shall just now detail, several German physicians of eminence who honoured our clinic with their presence, could not be persuaded, by the evidence of the most indubitable physical signs, of the existence of pericarditis, because, they said, in no such case could the pulse be natural in its frequency, softness, and rhythm, and they were only convinced when the pericardium was opened. A perfectly

natural pulse is not an unfrequent occurrence in pericarditis ; but the case before us exhibits a very remarkable peculiarity, viz., *a sudden decrease of the pulse at the very origin of the disease.* Of this I have witnessed but one other example, where, in the commencement of pericarditis, the pulse fell to thirty-six, and was extremely weak, faltering, irregular, and occasionally intermittent.

The gentleman whose pulse thus fell in a way similar to that of Fitzgerald, likewise recovered. The causes that produce quickness of the pulse in one case, and its slowness in another, in every other respect apparently similar, will for ever remain undiscovered ; and the same observation probably applies to the causes upon which depends irregularity of the heart's action. It is well known that certain forms of dyspepsia, hysteria, and nervous diseases occasion palpitations of the heart, and every variety of irregularity and intermission in the pulse, and that without any inflammatory or organic complication. When, therefore, inflammation attacks the heart or its membranes, palpitation, with irregularity, weakness, and intermission of the pulse, may be its indirect effects acting on the nervous energy of the heart.

This explanation seems the most satisfactory that can be advanced ; but still we cannot help thinking, that the rythm of the motions of the heart is sometimes directly interfered with by inflammation ; nor is it difficult to conceive that where, perhaps, one auricle and ventricle are inflamed, while the other auricle and ventricle are free from disease, the simultaneous action of these parts may be deranged. Be this as it may, and whichever hypothesis we adopt, it is of paramount practical importance to recollect, *that a weak, irregular, and intermitting pulse may exist in the very commencement of pericarditis*, that it may not exceed the natural frequency, or, as in the two cases detailed, many fall much below that standard, and yet antiphlogistic treatment be required.

The result of my experience is that, in carditis and pericarditis, when the pulse is weak, irregular, and intermitting, when it is soft, natural in its frequency, or else morbidly slow, general venesection should never be employed ; leeches over the region of the heart, cupping, blisters, calomel with opium, are best suited to this emergency, if it occurs during the acme of the disease ; but when towards the close, our chief reliance must be placed on powerfully blistering the region of the heart; dressing the vesicated surface with mercurial ointment, and exhibiting internally small doses of calomel with large doses of opium, and, if necessary, wine.

Digitalis exerts little or no control over inflammation of the heart ; and, like colchicum, if given in doses at all proportioned to the danger, it often suddenly produces dangerous or even fatal prostration of the nervous system. In protracted forms of cardiac or pericarditic inflammation, I have found colchicum combined with mercury and opium a useful adjunct ; and where the disease is decidedly chronic, refusing to yield to treatment, much benefit is sometimes derived from hydriodate of potash.

Let me next call your attention to the case of the boy named Reilly, aged 14, admitted September 15th, 1841. He stated that a fortnight before admission he was attacked with shivering, headache, pains in the loins extending along the margin of the ribs, and with severe pain in the præcordial region and violent palpitations. Two days after, an eruption appeared. When admitted, he presented the appearance of one in an advanced stage of typhus. He was quite collapsed, feet cold, and hands blue. The surface of the body was covered with an eruption of a small size and elevated, giving to the hand

the sensation of being covered with particles of sand. It was of a *miliary* form, and filled with a sanguinolent fluid. It seemed to have appeared in successive crops; for in some parts it was quite fresh, and the little vesicles were full and prominent; in others they were broken and levelled. Pulse 72, scarcely perceptible. He got wine and hot jelly, and warm stupes to his legs.

16th.—I saw him for the first time. His pulse was then 72, *weak, but regular*; his respiration 40, and laboured; lips livid; great anxiety of countenance. He complained of extreme pain in the cardiac region, increased by pressing the ribs towards the heart, or by making deep pressure in the epigastrium, so as to push upwards against the diaphragm. The stethoscope detected a remarkably loud frottement all over the præcordial region, accompanied by a strong frémissement. The frottement was heard with both sounds; and in some situations, particularly towards the right nipple, it had the character of the bruit de cuir neuf; there was no bruit de soufflet; impulse violent, and sounds of heart loud; no dulness; *the morbid sounds did not extend beyond the cardiac region.*

There was scarcely any change till two days after, when, in addition to the pericarditis, he was attacked with acute pain in the right hypochondrium, with excessive tenderness on pressure. The next day the legs and belly began to swell, and new phenomena were observed in the neighbourhood of the heart. The friction sound, which two days before was very loud, corresponding to the apex of the heart, was now completely absent, and though the cardiac region sounded clear, yet immediately above the nipple, and for two inches and a-half upwards, *there was complete dulness*, and all over this dull region we heard the *friction* as loud as ever, and that modification of it called *the leather creak*, which was still confined to the right side of the heart. It was found that these sounds were quite independent of the respiratory movements, for they went on interruptedly during the cessation of breathing.

Early next morning he died, and the post-mortem examination was exceedingly illustrative. The lungs and pleura were quite healthy. The heart occupied a situation higher in the thorax than usual; *its base corresponded to the space between the first and second ribs*, and was evidently pushed up to the left lobe of the liver, and the fluid so suddenly effused in the abdomen. On slitting up the pericardium, it was found thickened; the external layer was very vascular, and both it and the layer covering the heart were thickly coated with lymph. At the apex of the heart the two surfaces were closely united; but at the base there was no attempt at union. In this situation, but more particularly towards its sternal aspect, the lymph was thrown out in greater abundance, and presented a rough and noded appearance. The substance of the heart, as well as the valves and endocardium, was free from disease. The peritoneum was quite healthy, but its sac was distended with a large quantity of straw-coloured serum, without any lymph. The liver was greatly enlarged and engorged with blood, which exuded freely from the incision made into it. The intestines and stomach were quite normal. The kidneys exhibited the second stage of the albuminous nephritis (so called), and the urine in the bladder was albuminous.

Let me here draw your attention strongly to the fact, that although the impulse of the heart was violent, yet the sound produced by the roughened pericardiac surfaces against each other was very limited in extent, being only audible over the region immediately covering the heart; whereas, in Mulcahy's case, and that detailed by Dr. Watson, the pericardiac friction gave

rise to a sound audible over even the most distant parts, and in them nearly as loud as in the cardiac region.

What can be the cause of a difference so striking? It cannot be accounted for by any corresponding difference in the nature of the lymph effused, and a consequent difference in the physical constitution of the rubbing surfaces; for no such difference could be perceived between the pericardiac pseudo-membranes in the case of Mulcahy and that of Reilly. In Dr. Watson's patient they are represented to have been somewhat of a horny nature, a fact which may be thought to explain the loudness and extensive diffusion of the sound; but as such an explanation does not account for the great difference observed as to the extent and diffusion of the pericarditic sounds in the two other patients, it becomes a matter of great interest to ascertain its real cause; and, after much consideration of the subject, and duly weighing all the phenomena exhibited during life and revealed by dissection, I have little or no hesitation in affirming that in Mulcahy the sounds were louder and more extensively audible: because, first, his heart was greatly hypertrophied and enlarged, and consequently the rubbing surfaces were actually greater in extent; secondly, as happens in all cases of considerable enlargement of the heart, the position of that organ within the chest is altered, and a much greater proportion of its body comes in contact with the chest; and, thirdly, (but upon this I shall not insist so much as upon the two preceding), because in Mulcahy the water effused into the pleural cavity pressed the heart still more closely against the sternum and ribs, which thus acted as conductors of the sound.

These cases are then peculiarly instructive, *as indicating a great difference between the diffusion of the rubbing sounds heard in pericarditis attacking a heart previously healthy and of natural dimensions, and pericarditis supervening where the heart is enlarged and hypertrophied.*

Having spoken of rheumatic inflammation as affecting the substance of the heart itself, I must observe that the existence of rheumatic inflammation of the heart is rather inferred than proved. A little reflection will, at all events, convince us that rheumatism, properly so called, affects certain systems of muscles much more frequently than others. The locomotive muscles are those most usually the seat of rheumatism; and even among them an inexplicable difference may be detected upon close examination. Those employed in the motions of the head and neck, and those which perform the flexion of the lumbar spine, being by far more frequently affected than any others; on the other hand, all those muscles which are connected with organic life are comparatively exempt from muscular rheumatism. Thus, the extensive system of the intestinal muscles are seldom, if ever, so affected; the vesical muscles are similarly circumstanced; and it may be doubted whether the muscles of the heart do not enjoy the same immunity.

The muscles of the heart, it is true, are often excited into inordinate action by rheumatic inflammation of their lining or covering membranes; but this very increase of action would be either impossible, or attended with excessive pain, if the muscular structure was attacked by rheumatism at all resembling that which we observe in lumbago or crick in the neck. Such an affection would render the heart's motions, particularly when increased, extremely painful; indeed, it would most probably arrest them altogether.

LECTURE XLVIII.

PERICARDITIS.—ORGANIC DISEASE OF THE HEART.—PERICARDIAL EFFUSION.

IN continuation of the observations which I was making at the conclusion of my last lecture on the signs and symptoms of pericarditis, I shall first call your attention to the case of the man Connell, aged 50, who was admitted on the 10th of August. He stated that for eight years before admission he had suffered from palpitation and dyspnoea, which had increased greatly in severity of late; he had always led an intemperate life, and for many years was in the habit of drinking from ten to twenty glasses of whiskey in the day. When admitted, he was much emaciated, his belly was distended and his legs œdematous. He had cough with purulent expectoration, no dyspnoea when at rest, and his pulse was 74, soft and regular; decubitus on the right side; no pain in any part of the chest or abdomen; no enlargement of jugulars, but the tips of the ears and the lips were blue; no visible pulsation, thrill, or bruit de soufflet in any of the arteries of the neck or upper extremity, and when at rest no suffering from palpitation.

Physical signs.—Chest sounded dull all over the right side, both before and behind; in the upper part the respiratory murmur was weak and mixed with crepitus, below it was scarcely audible. The left side sounded clear, and the respiration was loud, puerile, and free from rale: there was slight increase of cardiac dulness, particularly towards the sternum; the impulse of the heart was strong and rather diffused, its sounds loud; the first was accompanied by a bruit de soufflet, audible all over the cardiac region, but remarkably intense to the left of the nipple. *This did not ascend along the course of the aorta*, nor was it accompanied by any frémissement.

From his admission into the hospital till his death, which took place five weeks after, there was not the least change in the cardiac signs. The physical phenomena did not undergo the slightest alteration; the pulse was always natural in frequency, and free from any intermission or irregularity; and, unless disturbed, his breathing appeared easy and tranquil. The anasarca increased, and the cough became more distressing; the crepitus heard on admission gradually passed into gurgling, and on the 20th of September he died.

Post Mortem.—The abdomen was greatly distended with fluid; the intestines were healthy; the liver was somewhat enlarged, and its edges rounded off, but otherwise natural; the gall bladder contained a few calculi; *lungs* were connected to the parietes by old adhesions; the left was exceedingly healthy; the right was studded with tubercles, and its apex was occupied by small cavities; the *heart* was hypertrophied, and the pericardium universally adherent the union being effected by a dense membrane. There was not the least trace of vascularity or of recently deposited lymph, but the pericardium was much thickened. *All the valves of the heart, the semilunar, tricuspid, and mitral, were perfectly healthy; the aorta was dilated at its ascending portion (not at its arch),*

its lining membrane completely removed, and its inner surface rough and scabrous from an abundant deposition of earthy matter in its middle coat. The arch of the aorta and its descending portion were extremely healthy ; and the normal condition of the aortic valves was put beyond question, by pouring water down the aorta, not a drop of which escaped into the ventricle.

In this case the permanency of the bruit de soufflet during many weeks, and its being constantly confined to the same place, left no doubt of its being owing to an organic fixed cause. This bruit, though heard over the right side of the heart, was more audible over the left, and therefore we looked for the cause in the left cavities, and we assumed that the mitral valves were the seat of disease, or altered in their structure. This diagnosis, however, I considered more tentative than certain, and I explained to you that I had not much confidence in it ; for, though the bruit was loudest immediately over the situation of the mitral valve, yet, in the majority of cases, regurgitation through the left auriculo-ventricular opening is accompanied by a marked derangement of the pulse.

Against its depending on disease of the aortic valves, or of the inner surface of the aorta itself, I urged the fact that the bruit could not be heard along the course of the aorta, as recent writers say it invariably is in either of these cases. The absence of visible arterial pulsation and thrill was opposed to the supposition of permanent patency of the aortic valves. Dissection proved that the bruit was occasioned by a roughness of the internal aortic surface, embracing the whole of its ascending portion.

Here, then, is a fact totally at variance with received notions, and, in my opinion, quite subversive of the rules laid down by those pathologists who think they can always discover the cause of cardiac bruits by a close examination of the intensity and diffusion of the sound. I leave it to other to explain the fact, as certain as it is anomalous, that a loud bruit de soufflet, caused by extensive aortic roughness, had its maximum intensity over the region of the mitral valves, and could not be traced along the ascending aorta. How are we to distinguish such a case as this from disease of the mitral valves ?

The following from Dr. Budd, in his *Clinical Remarks* at King's College Hospital, published in the *Medical Gazette* for January the 7th, 1842, exhibits symptoms, functional and physical, almost so perfectly identical with those detailed in the instance of Connell, that a candid observer, reading the history of both, must conclude that they necessarily depend upon exactly the same structural alterations :—

“A girl named Maria Pepler was admitted into the King's College Hospital on the 18th November, 1840. She was 25 years of age, and had been living in service. She stated that her health was very good until five years previously, when she became affected with dropsy of the legs, which went off at the end of six weeks. Since that time she had been subject to palpitation and shortness of breath, with occasional cough ; and the dropsy had recurred whenever she had taken cold. On admission, she complained of palpitation, much increased by any exertion, and of occasional faintness. There was difficulty of breathing to such a degree, that she was unable to lie back ; and a troublesome cough, attended with expectoration of a frothy mucilaginous fluid, and sometimes so prolonged as to bring on vomiting. The lips and cheeks were of purplish hue, and there was great distention of the jugulars. Much dropsical swelling of the lower extremities, but no œdema of the hands and face. A systolic bruit was heard over the præcordia, loudest at the point

of the heart, *and to the left of the mamma*. At the point of the heart no diastolic sound could be heard. Towards the sternum and base of the heart the systolic bruit diminished very much in intensity, and the natural diastolic sound became inaudible. There was no morbid sound in the course of the aorta or carotids. Auscultation of the lungs indicated increased secretion from the bronchial tubes. On the 14th of December she died suddenly.

"Post Mortem.—The heart is of enormous size, placed transversely and quite uncovered by lung. The right ventricle is enormously dilated, and its parietes are thicker and firmer than those of the left ventricle. The apex of the heart is formed by the right ventricle, and descended lower than the left. The left ventricle is not dilated nor hypertrophied. Both auricles are greatly dilated, and were gorged with blood. The mitral valves are joined together, and perfectly rigid, forming a permanent aperture which scarcely admits the tip of the little finger. A good deal of bony matter is deposited under the investing membrane of the valves; but there are no vegetations on their surface. One or two extremely minute warty growths on the tricuspid valves. The aortic valves are, perhaps, a little thickened; but in other respects they are perfectly natural, as are also the pulmonary valves and the aorta."

Notwithstanding the boasted perfection of the means pointed out by recent writers, and which, they aver, always indicate with certainty the nature and locality of valvular diseases of the heart, it must be allowed that these means were totally inapplicable, as leading to a diagnosis between the cases of Connell and Pepler. We are led, therefore, to the humiliating confession, that in the present state of science excessive disease of the mitral valves cannot be always distinguished from aortic roughness.

In Connell's case we did not even suspect the existence of aortic roughness, because some of the physical symptoms believed to be most strongly indicative of that roughness were wanting, viz., vibration felt along the right edge of the sternum, and loudness and roughness of the systolic bruit heard there and over the arteries of the neck. The absence of these two so vaunted diagnostic symptoms, in a case where there were ossific plates on the inner surface of the ascending aorta, is scarcely more destructive of the presumptions of modern cardiac signs, than is the presence of the very same two symptoms in the following case, also related by Dr. Budd (*Medical Gazette*) December 24, 1811), and in which they originated from diseased aortic valves. After detailing the sufferings and post mortem of the patient, whose name was Coyne, Dr. Budd sums up his remarks by saying, "When Coyne was admitted into the hospital it was evident, from the great extent of the dulness at the præcordia, that the heart was much enlarged, and from the powerful and heaving impulse that there was hypertrophy of the left ventricle. We inferred also, from the visible pulsation of the arteries, and from the diastolic bellows-sound heard about the base of the heart, that the aortic valves were diseased, and admitted regurgitation. The loud systolic bruit heard at the apex might also arise from such disease of the aortic valves. The strong vibration felt by the hand showed that there was some ossification.

"So far our predictions were realized. But we were led to imagine, from the strong vibration felt along the right edge of the sternum, from the third rib to the clavicle, and from the loudness and roughness of the systolic bruit heard there and over the arteries of the neck, that there were ossific plates on the inner surface of the ascending aorta. In this, however, we were mistaken; this portion of the artery was quite healthy.

"This case of Coyne shows us how perfectly a vibration, originating at the

aortic valves, and causing a systolic bruit, may be propagated along the arteries."

In the next case there were bruit de soufflet and frémissement all over the chest, both before and behind, and in the arteries of the neck, &c., without any evidence of pericarditis or valvular disease; it is that of the remarkably fine girl, about ten years old, named Mary Robinson, who was admitted November 1st, for symptoms supposed to depend on hydrocephalus. For this disease she was treated in the usual way, and appeared to improve gradually. Four days after admission the following note was taken: lies half asleep; occasionally crying out from pain in the head; her face is pale; lips puffed and pale; head drawn back; muscles of the neck rigid; there is no appearance of abscess or tumour in any part of the neck or œdema. The head is hot, but the pupils are quite natural; there is a very remarkable pulsation in both carotids, attended with loud bruit de soufflet and thrill; the action of the heart is violent, its sounds loud, and with the first is heard a very loud bruit de soufflet, which is not confined to the cardiac region, but is heard all over the chest, *both before and behind*, and in every situation there is a strong frémissement. There is no bruit in the abdominal aorta; she has no dyspnoea, palpitation or cough; no pain on pressing over the heart, or pushing up the diaphragm against the apex of the organ. Pulse 100, pretty strong and full; digestive functions natural; skin hot.

She remained in the hospital for ten or twelve days after the above note was taken; the bruit and thrill gradually became less distinct, but at the time of her departure they had not entirely disappeared.

Now, in this case, a most remarkable feature was the intense frémissement, or *thrilling vibratory motion*, perceptible by the hand on whatever part of the chest it was placed. This thrilling motion appeared nearly equable throughout all the pectoral regions, and was synchronous with the systolic motions of the heart, and a loud bruit de soufflet, which, likewise, was equally audible all over the chest. The phenomena in this case were, in my opinion, totally unconnected with pericarditis or valvular disease, and the result showed that opinion to be correct, for the physical phenomena disappeared under the use of nervous medicines and nutritious diet.

It becomes interesting to determine, first, how we are to distinguish such a case from pericarditis or valvular disease; and, secondly, how we are to account for the physical signs which this girl exhibited. With respect to the first question, it may be thought that a thrilling vibratory motion so intense, and a bruit de soufflet so loud, and both nearly equable all over the chest, could not be produced by pericarditis; but this is not correct, for I saw along with Dr. Parkinson, a case in North Great Charles-street, where a bruit de soufflet as loud, and vibration as intense, were established all over the chest in the interval between our morning and evening visit, in a gentleman labouring under pericarditis. I regret that I took no note of this case at the time and consequently cannot say whether the bruit de soufflet and thrill extended to the carotids. I regret this the more, because if they did not so extend, the diagnosis between such a case and that of our patient Robinson would be obvious. The absence of any dyspnoea or other irregularity of the respiratory function, made it evident that in Mary Robinson the thrill and bruit were unconnected with pericarditis, for pericarditis could not give rise to such phenomena except when most intense, and when thus intense it always produces functional derangement easily to be recognised.

With respect to the diagnosis between the phenomena observed in our

patient and those which occur in valvular disease, it is sufficient to remark, that in the latter the thrill and bruit are never equally diffused over the whole back and front of the chest. Next, with regard to the cause of these phenomena, it is to be held in mind that similar physical signs are produced by vibrations arising from the blood flowing through roughened arteries or diseased valves; a result sufficiently explicable by the ordinary principles of acoustics; and, secondly, that they may be caused by pericardial friction in pericarditis. Physiologists have applied themselves to the explanation of the thrill and bruit so often heard in hysterical, nervous, and exhausted patients; but I am not aware that these phenomena have, in such persons, been observed to extend beyond the vascular system, or have been imparted in all their intensity to the whole parietes of the chest.

I do not feel myself at present enabled to offer any solid reasons for either supporting or opposing the opinion generally advanced, concerning the cause of *frémissement* or bruit in the arteries of the nervous or debilitated; and I am equally at a loss to account for these phenomena, as observed in the thoracic parietes and arterial system of Mary Robinson, and my consciousness of the difficulty of offering any adequate explanation is increased by the fact, that they were entirely absent in the abdominal aorta and arteries of the lower extremities.

In contrast to the cases I have now been speaking of, I lay before you the heart of a gentleman who had walked to my house to consult me fourteen days ago. It is an example of the great degree to which organic disease may proceed without exciting serious symptoms, or much alarm. The patient was about fifty-four years of age, and of active habits. He had never felt any inconvenience, nor any deviation from a state of general good health, until about six weeks ago, when happening to be travelling in the country, he got out of his carriage to walk up a steep hill, and after walking some distance, found his breathing become so short and oppressed that he was obliged to stand a considerable time to recover himself. He recovered perfectly, and without any remaining trace of dyspnoea; but after some time it returned again, and he found that his breathing became short whenever he went up stairs or walked quickly on level ground. After each attack, however, he seemed to be quite well. About a month since he got influenza, accompanied by the usual symptoms of feverishness, bronchitis, and dyspnoea, but he did not think much of it—complained of very little inconvenience, and was not confined to his bed or room. When I first saw him, he said that he was labouring under a very severe cold. On examining his chest, the heart was found to pulsate violently, irregularly, and tumultuously; there was a corresponding state of the pulse, which was so irregular that it could not be said to intermit. A loud bruit de soufflet, accompanying the first sound, was audible over the whole cardiac region, and extending as high as the top of the sternum; he had also bronchitic cough, with paroxysms resembling those of asthma. His symptoms progressed with unusual rapidity; his breathing became more difficult, he had complete orthopnoea, became in the course of a few days quite dropsical, and died rather suddenly about a fortnight after.

On removing the heart, it had the shape of a heart in which there was disease of the aortic valves; and this was not only the case, but there was no other morbid change in the organ. Anyone who examined the valves would find that they had been ossified to such an extent as not to allow the tip of the little finger to pass. With regard to diagnosis, I may remark, that I was not quite satisfied during life that the disease was in the valves of the aorta;

indeed, I was rather inclined to look upon it as a different affection. The *bruit de soufflet*, it was true, was accompanied by a certain roughness in the sound which might be attributed to the friction of the blood over the roughened surface of the aorta, but owing to the loudness of the sound, and its diffusion over a large space, it was impossible to localize it so as to arrive at any certain conclusion. Where *bruit de soufflet* is very loud, and diffused over a considerable space, very little precise information can be derived from it, but when moderate, it gives us an opportunity of discovering the quarter from which it proceeds. Another remarkable circumstance connected with this case is, the consideration how it was possible that life could be maintained so long with an aortic opening so much diseased. From the history of the case, it was probable that if this gentleman had not got influenza, he would have lived much longer. It shows that in many instances, where organic disease is forming, it may remain latent for a long time, until something occurs which interferes with the function of the part. The first thing which rendered this gentleman's disease perceptible was the exertion made in walking up a hill, and it was rendered still more obvious by the attack of influenza. It is this circumstance which gives to organic disease a character of periodicity; matters go on quietly until some cause produces functional disturbance, and then the mischief stands revealed. In this gentleman's case it was remarkable, that even at an advanced state of the disease he had well-marked paroxysms of dyspnoea. The only other points worthy of notice were the presence of bronchial inflammation and a carnified state of the lung, which of course were chiefly attributable to the obstinate state of the circulation.

Let me now call your attention to the termination of pericarditis in effusion, and to the symptoms thereby produced. The following case was so accurately noted, and the morbid appearances accounted so satisfactorily for the symptoms observed during life, that I shall use it as the ground-work of my remarks.

Mary Kernan, aged 10, was admitted into hospital October the 6th, in a state of collapse, moaning, sighing, and evidently suffering great distress from difficulty of breathing; the pulse could scarcely be detected; her extremities were cold, and considerable tenderness existed over the left side of the chest. Carbonate of ammonia, with calomel, and dry cupping to the painful parts were ordered; and being this morning more at ease and less in agony, she gives the following statements as the history of her illness.

Being placed in a draught of air, yesterday week whilst lying in bed, she was seized the following day with shiverings, vomiting, headache, pains in the loins, thighs, and legs, also a beating of the heart so strong as to make her imagine it would at last "thump" through her side, continuing for two days with slight intermissions in its violence; it was then accompanied by an acute, sharp, lancinating pain in the mammary region, extending to the neck and back, being particularly severe between the shoulder blades and the left arm as far as the elbow, and aggravated by motion, full inspiration, or muscular efforts of any description. Added to these complaints, there were difficulty of lying on the left side, with shortness of breath, and a hacking, distressing cough, without expectoration; this, however, she had for many days previously, without any attendant pain or other untoward symptom.

From the chest the pain seemed to spread or dart forward to the right side of the abdomen, and from thence over every part of the belly, occasioning more uneasiness than when confined to its primitive seat. Prior to her admission, some purgative medicines were given with slight relief. For

several nights past her sleep has been much disturbed, and she now lies on her right side, groaning frequently, and prostrated in strength, so as to be unable to raise herself in bed without assistance. She complains mostly of urgent thirst, a stuffing about the chest, and a "great weight or heavy load on the heart;" inability to lie on the left side, or sit up from an increase in the cough; pains in the mammary region, and palpitations of the heart; when pressure is made over this portion of the chest, much disquietude is produced.

Her countenance is bloated, cedematous, and pale; lips almost colourless; skin hot and dry; breathing rapid and laboured, 48 in the minute; pulse 120, small, feeble, varying in strength, and intermittent; tongue furred and clammy.

The left side of the chest to the eye appears fuller, of larger dimensions, and the muscles, as it were, puffed out; this is particularly obvious about the nipple; when measured, no inequality between the two sides can be discovered; percussion from an inch below the left clavicle to the lower part of the cardiac region, also laterally over a space of several inches, is perfectly dull; this is likewise observable over the middle and inferior parts of the sternum, and to the right of this bone, whilst posteriorly over both scapulæ, as far as their spinous ridge and below these bones, it is preternaturally clear. Respiration is exceedingly feeble over the dull parts, but free from rale, and elsewhere very loud. Impulse of heart cannot be felt; its action feeble, sounds indistinct below the mamma, becoming more audible towards the sternum, but can be heard in the epigastrium. No bruit can be detected. Abdomen full, tense, and much pained by pressure over the hepatic region.

Applicentur hirudines sex regioni cordis et hypochondrio dextro.
Habeat Hydrargyri cum Cretâ grana quinque ter in die.

7th.—Leeches were applied to the hepatic region alone; she expresses herself as somewhat relieved, and can now lie on the left side without being so much inconvenienced; slept better, and moaned comparatively little; pulse very irregular, is full and soft at one time for eight or ten beats, then diminishing in strength, it increases in frequency to the rate of 120 to 130, gradually vanishes from beneath the finger, and ceases to be felt; the succeeding pulsations are full and distinct, not more than 88 or 90 in the minute. Respiration 48, still distressed; bowels opened twice; tongue loaded and moist. Percussion over the parts noted above remains the same; on the clavicles of each side it is quite natural. Immediately above the left clavicle there is an evident fulness or swelling of the lower part of the neck, not visible on the right side; *and on coughing a tumour is brought into view, which disappears as soon as the paroxysm subsides.* Respiration in this part is perfectly distinct; a wheezing rale is audible in the lower portion of the left side. Heart's impulse and action the same; in the erect posture its sounds can scarcely be detected, but on lying down they are tolerably distinct.

Applicetur vesicatorium epigastrio, et repetantur
pulveres hydrargyri cum cretâ.

8th.—Was very restless the entire night, moaning frequently and coughing constantly. Her countenance is less swollen; her breathing is more difficult; and she complains principally of the "stuffing and weight about the heart." Pulse remains of the same character, but is not so irregular.

No change has taken place in the phenomena either of the lungs or heart,

except that the fulness in the lower part of the neck is more apparent, and the bronchitic rales more distinct in the inferior and middle portions of each lung. Abdomen not so tender, but still swollen ; bowels purged.

Leeches were again ordered, and a further attempt made to bring the system under the influence of mercury by inunction and the vapour of a mercurial candle.

9th.—Breath is slightly mercurial ; appears less affected in her breathing ; the respirations continue rapid, 40 in the minute ; no alteration in the character of the pulse.

There are now intense cooing and hissing rales in each lung posteriorly, but otherwise no change has taken place in the percussion or respiration. The cough is very troublesome, and attended with a frothy tenacious expectoration ; pains increased, and palpitations induced by lying on the left side.

Repetantur omnia ut heri præscripta, et applicetur vesicatorium hypochondrio dextro.

10th.—Prefers being in the erect posture, being more at ease, less oppressed, and in a great measure relieved of “the weight and load on her heart.” Her countenance and aspect generally are improved, but her breathing remains frequent and laboured ; *the pulse is regular, 128 in the minute ; does not vary in strength, neither has an intermission occurred during so many beats.* She is at present sitting up in the bed, and whilst in this posture the pulse was counted.

Percussion over the inferior portions of each lung posteriorly, the left in particular, has lost its tympanitic sound, but retains it at the superior parts. Heart's impulse is still imperceptible ; its sounds are indistinctly audible along the sternum.

Applicetur vesicatorium lateri sinistro et repetantur alia.

11th.—The pulse again varies in strength, intermits occasionally, and partakes of the description given on the 7th, is 120 in the minute, but she is now in the recumbent posture ; passed the night, as heretofore, moaning and in a very restless manner ; complains of the oppression about her heart being increased, and refers it to the lower part of the sternum and right side. There is considerable wheezing in the throat ; on account of the blister no examination of the chest could be made ; pressure over the abdomen produces pain ; it is swollen and dull all over when percussed.

Applicetur vesicatorium regioni cordis et repetantur alia.

12th.—The phenomena remain as before, viz. fulness about the lower part of the left side of the neck, with pure and distinct respiration ; healthy sound on percussion over each clavicle, with the natural vesicular murmur ; one inch below this, better marked on the left side, extending over the middle and inferior parts of the sternum, anterior part of right side, and a portion of the lateral of the left, a perfectly dull sound is elicited by percussion ; the respiration being almost null in the left, feeble but distinct in the right. A very clear sound on percussion in the superior parts posteriorly, with a mixture of bronchitic and crepitating rales in the inferior lobes, and loud respiration, free from rale, in the superior lobes. Heart's impulse and action the same. Pulse much weaker ; respiration more frequent, 56 in the minute ; breathing free ; tongue loaded.

13th.—Pulse almost imperceptible ; breathing more laboured and distressed ; lips of a livid hue.—Died at 11 o'clock, P.M.

Autopsy fourteen hours after death.—External appearance similar to that presented when alive ; countenance puffed, pale, and cedematous ; chest, *particularly left side, full and prominent*, and the abdomen distended and rounded. The same phenomena are afforded by percussion as noted in the reports during life. The integuments of the chest, as also those of the abdomen, are watery. As soon as the knife pierced the cartilages of the left ribs, a gush of straw-coloured fluid took place, and when the sternum was raised, nothing but the pericardium could be seen ; to such an extent was it distended, as to occupy the mesial line extending from the diaphragm to within one inch of the fourchette of the sternum, and across to the right side. On removing it from the cavity of the thorax, the lung was found much diminished in size, pushed upwards, and pressed against the spine and ribs, having lost a great deal of its natural feel, and appearing like a lung compressed by a pleuritic effusion. The right lung was also affected in the same manner, but in a minor degree. Slight adhesions of recent formation existed between the left lung and pericardial sac, as also between the pulmonary and costal pleura, at the superior lobe of the right lung.

The pericardium itself is increased to at least three times its natural capacity ; its exterior highly vascular, whilst its internal surface appears smooth, shining, and covered with a gelatinous kind of fluid resembling the mucous coat of the stomach, or other portions of the intestinal canal. Its thickness is from three to five lines ; but on inspecting the cut surfaces minutely, it is evident this increase is produced by the addition of a false membrane. On the superficies of this membrane are several patches of apparently coagulated lymph, stained of a purple or dark-red colour, differing considerably in their dimensions, and situated in particular near the base of the heart, and that part of the sac in connexion with the posterior surface of this viscus ; the larger of these, however, of an oblong shape, about two inches in length, and of a darker colour than the rest, is situated where the anterior part of the heart and pericardium are in contact. Besides these are innumerable depressions, or pittings, capable of admitting the end of a probe on the lower and anterior part of this membrane, whilst near the base of the heart and the posterior part of its investing sac, this coating is separated into distinct patches, the serous covering of the pericardium being quite apparent underneath, and presenting its natural glistening appearance.

This false membrane can, with the greatest facility, be scraped off in solid pieces by the nail.

The entire surface of the heart is of a vermilion colour, and coated over with a most beautiful, honey-comb, reticular kind of organized lymph, exceedingly fine, but perfectly adherent to the layer of serous membrane covering the heart at the apex.

Advancing upwards or nearer to the base, it is more condensed and compact, seemingly farther progressed in the process of organization, the shreds and interlacing fibres being increased in bulk.

From the quantity of this crimson-coloured network, at the commencement of the aorta and pulmonary artery, it is almost impossible to distinguish between them, so closely are they united together. The under surface of the auricular appendices, and that part of the heart they rest on, are the only portions which do not present to the same degree, and in a slight manner merely, the general aspect described.

Covered in this manner, and to such an extent as the anterior surface is, the posterior is trebly more so, and with a form of lymph more organized, denser and firmer; and from its exterior are three or four appendages, tough, closely adherent to and evidently taking their origin from the surface of the coagulable lymph.

On the removal of a portion of this coating, the substance of the heart beneath presents a rosaceous hue; its size does not appear to be much altered, perhaps rather larger than natural. No examination of the interior. A quantity of the same coloured fluid escaped from the cavity of the abdomen on laying open its parietes; the liver did not appear increased in size, and its structure was perfectly healthy; bands of lymph passed between and connected together the visceral and parietal peritoneum, few and slight, and not connecting together the intestines themselves. The interior of the intestinal canal was not examined.

Now in this case the following points are particularly worthy of your notice.

1st. The great size of the tumour formed by the distended pericardium.

2ndly. The protrusion of the left lung to a considerable extent above the clavicle, forming the tumefaction observed in that situation.

3rdly. The tympanitic sound produced by the close application of the lung to certain parts of the *tense* pectoral parietes.

4thly. The varying states of the pulse, at one time intermitting and irregular, at another, free from these characters.

5thly. When this girl was admitted, copious effusion into the pericardium had already taken place, and yet her countenance was pale, and her lips colourless; there was no suffusion, no lividity, no venous turgescence whatever in the eyes, face, or lips; and yet her breathing was forty-eight, and the pulse feeble, varying in strength, and intermittent.

6thly. Although it is said in the report that the left half of the chest did not measure more than the right, yet there was an evident dilatation of the former, exactly corresponding to the distended pericardium, which, pushing before it the flexible parietes, formed a well-marked and evident prominence. This likewise rendered the parietes of the superior portions of the left side of the chest more tense than natural; an occurrence sure, for reasons well explained by Dr. Williams, to occasion increased resonance on percussion. *I am not aware that this consequence of pericarditis had been described, until I noticed it.*

Before concluding, I wish to call your attention to a very remarkable, I might almost say unique case, in which there were only two valves to the pulmonary artery, and those valves in an inflamed condition; there was also in this same case effusion into the pericardium, and pneumonia. It is that of a man named Bennett, aged sixty-six, who was admitted into hospital, November 13th, labouring under pneumonia. There was complete absence of fever; he had cough, with prune juice expectoration; and the physical signs which the case presented were intense dulness over the right lung behind, extending from the spine of scapula downwards, bronchial respiration, with some crepitus towards the end of each inspiration.

He was cupped and got tartar emetic in small doses, which was discontinued in consequence of its producing purging. Blisters were applied, but the physical signs remained almost stationary, particularly towards the centre of the lung. His tongue became dry and red, and he suffered from thirst; but in other respects he appeared steadily improving. After the purging ceased, he

was ordered various narcotics, and a seton was inserted opposite to where the disease appeared to be most intense.

On the morning of December 1st, we found him as usual at the clinical visit. The issue was discharging, and every thing apparently going on well; the next morning we were not a little surprised to find him moribund. Of course, in this state, no examination was made, and in about three hours after our departure he died.

Post Mortem.—The left lung was in every way healthy, except that it presented a few parts in an emphysematous state; the upper part of the right was also healthy, but the lower two-thirds, particularly at the back part, presented the usual appearance of solidification; they felt solid, were extremely friable, and did not crepitate. There was no abscess nor any purulent infiltration. The pleura was thickened, and was united to that lining the ribs.

The pericardium was distended with a straw-coloured fluid so abundant that we expected to find pericarditis. The membrane was, however, in every way healthy. The heart was very soft, and lay collapsed; its structure was pale, but otherwise normal. On slitting up the pulmonary artery, it was found occupied by a fibrinous clot, which presented the usual division produced by the branches of that vessel. There are only *two valves*, and they were both coated with a recent deposition of lymph, in some situations almost a quarter of an inch thick. A small part of this lymph was accidentally removed while examining the valves, and the latter were seen much thickened and opaque, in this respect contrasting, in a very remarkable manner, with the valves of the aorta, which were quite free from disease. The lining membrane, both of the pulmonary artery and the aorta, presented its usual appearance, as did also the endocardium. There was some calcareous deposit on the tricuspid and mitral valves, but not to an extent beyond what is frequently observed in subjects of the same age. There was no anasarca nor effusion into the chest or abdomen.

This case is one of extreme interest in three points of view; viz.,—first, the irregularity in the number of the pulmonary valves; second, the disease of these valves; third, the hydro-pericardium.

It is exceedingly rare, indeed, to find the valves either of the aorta or of the pulmonary artery irregular, *but when such irregularities do take place, the valves are increased in number*. There are in the Museum of the College of Surgeons in Ireland two specimens, one exhibiting the aorta, and the other the pulmonary artery, each with four valves; and one case is given by Malcarne, where the aorta divided soon after its origin, and in which five valves were found. The present is, as far as I can ascertain, the only specimen in which this particular irregularity has been observed; and it is remarkable that it should be united with an affection almost equally rare, viz., acute inflammation of these valves producing thickening and effusion of lymph.

The presence of a large quantity of fluid in the pericardium, *unaccompanied by inflammation of that membrane, or effusion into any other part*, combined with the two remarkable appearances already mentioned, renders the case highly interesting. The specimen is now in the Museum of the School of Medicine, Park-street.

The sudden death was produced, no doubt, by the obstruction presented to the course of the blood from the heart into the lungs, added to the already existing extensive solidification of the right lung.

LECTURE XLIX.

FUNCTIONAL DISEASE OF THE HEART.—THORACIC ANEURISM.—PALPITATION OF THE HEART, AND ENLARGED THYROID GLAND.

I SHALL commence to-day's lecture with some observations on functional disease of the heart, and by a reference to some cases that have occurred in my practice, prove to you the difficulty which indeed nearly always exists in diagnosing functional from organic disease of that organ, and also show that death may be caused by simple functional affection without the presence of any organic change.

The first case I shall refer to is that of a gentleman who lived in Fitzwilliam-square, whom I saw with Mr. Carroll. He was 65 years of age, with every appearance of a healthy constitution, of regular habits and exceedingly temperate. In January, 1839, he was suddenly attacked with a dull pain in the region of the stomach, which he attributed to indigestion; shortly afterwards he vomited, his pulse became feeble and fluttering, his breathing panting and laborious, and his extremities deadly cold. This state continued for about three hours, notwithstanding the use of the most active stimulants, both internal and external. After recovering from this state he slept well that night, and next morning complained only of a feeling of languor.

He continued in his usual health for about ten days, when he was again attacked in a similar manner, but the fit did not last so long. The attacks from this time until his death, which did not occur for twelve months, increased in frequency, but each lasted for a shorter period than the preceding one. Let me describe a little more particularly to you the character of those attacks, some of which I witnessed. He was warned of the approach of each by a feeling of faintness and pain in the stomach, when he used to cry out, "Oh, it is coming on." This was followed by straining to vomit, and panting, with a feeling of want of air, so much so as to make him wish to have the windows opened. There was no wheezing or cough, and the face was natural in colour but sunk. The pulse could not be felt at the wrist, and the heart's action was scarcely perceivable: in each fit he thought he should die. The attacks varied in length from half an hour to two hours, or even more.

In the intervals the pulse was perfectly regular, and there was no abnormal sound of the heart to be heard. Ascending a height or going up stairs gave rise to a feeling of dread, but did not cause dyspnoea or palpitation. There was no dropsical effusion at any stage of his illness. This gentleman was seen at different periods by some of the most eminent medical men in Dublin, and his disease was believed to have been either water on the chest or organic disease of the heart; but on examination after death that viscus was found to be, in every respect, perfectly healthy.

This case I look upon as an example of purely functional disease of the heart: such an affection is sometimes hereditary; at least it appears to have been so in this gentleman's family, for three of five children that he had have

been similarly affected. His eldest son had two attacks at an interval of twelve months, but he has not had any return of them, although more than a year has now elapsed since the last ; and two of his daughters have each had similar attacks, but slighter.

The next case I shall relate you is that of a lady aged 40, of an active, healthy constitution, whom I also saw with Mr. Carroll. While in London, being exposed to great fatigue from walking during a very hot summer, she was attacked with faintness and violent palpitation, which lasted about an hour. She had no return of the attack for about twelve months, when she was again similarly affected. The fits of palpitation, at first distant, became more frequent, and finally proved fatal in about nine months after the occurrence of the second. At first the pulse was irregular during the fits only, being natural in the intervals, but towards the conclusion of the disease this irregularity of pulse and of the heart was perpetual. In this case the most careful examination after death could not detect the least trace of organic disease of the heart.

The following case differs much, both in its character and symptoms, from those I have now related ; nevertheless, I look upon it also as one of purely functional disease. It is that of a lady aged 46, who has been under my care from the time she was first attacked, now two years and eight months ago. Her illness commenced with rheumatism of the left arm, and pain darting from the centre of the sternum to the back and down the left arm, but without the least dyspnoea or fainting ; also brow-ache very violent. For ten or fifteen years she felt occasional intermission of pulse, but after October, 1846, this became very troublesome and annoying—she being conscious of stoppage of the heart's action at each intermission ; this consciousness being accompanied by a very unpleasant feeling, as if something scattered from the heart all through her chest, and occasionally this feeling induced a tendency to faint. At first the intermissions did not occur in more than monthly paroxysms, each paroxysm lasting three or four days, and only annoying her for a few hours in the morning ; during these hours the intermissions were very frequent, every second and fifth beat, and two or three often together ; this corresponded to intermission of the heart's action, as heard and felt ; paroxysms after a time became more frequent—every fortnight—but still with intervals quite free ; latterly the intermissions continued all through the day, but still worse in the morning. She experiences some slight dyspnoea after going up stairs ; but there is no *physical sign of organic disease*. Her health is otherwise perfect ; *no dropsy* nor lividity of the face. Her father had for many years intermitting pulse, but lived to a good old age.

This form of functional derangement of the heart's action is often produced by various causes, but by none so frequently as by the habit of smoking or taking snuff to excess. It is well for you to bear this in mind, as it may aid you to diagnose between it and organic disease.

In continuation of the subject which we have been now engaged with—diseases of the heart—let me next direct your attention to the case of the man named James Byrne, who lies next the door in the chronic ward, and has been supposed to labour under aneurism of the thoracic aorta ; he leaves the hospital to-day. It is very probable, however, that he will hereafter be forced to return ; for, whatever be the nature of his disease, it is incurable, and depends on some profound organic lesion. I would advise any gentleman who has not attended to this very obscure case before, to take the opportunity of

making an accurate examination of the patient during the short time he remains in the hospital.

While the phenomena of this case are still fresh in our minds, let us briefly discuss the question, whether this man really has aneurism of the thoracic aorta, and inquire whether there may not be some other cause to which his symptoms might be attributed with a more reasonable degree of probability. He was admitted on the 23rd of October, 1834, and had been in the hospital before for a considerable time. He states that, eighteen months previously to his last admission, he was exposed to wet and cold, which produced a feverish attack, with symptoms of local inflammation in the lung, manifested by cough and difficulty of breathing. These were soon afterwards followed by dropsical swelling, and he applied at this hospital for relief. After remaining under treatment for about two months he began to improve, and left the hospital, as he states, quite relieved. He enjoyed tolerably good health, and continued to work at his trade as a bricklayer until about five weeks before his last admission, when he was again attacked with cough and difficulty of breathing, accompanied by œdema of the left side of the chest and left arm.

On examining him after his admission, the following phenomena were observed :—The left side of the face and neck was slightly cedematous ; the left external jugular vein, with its immediate branches, engorged and very prominent ; the left arm and left side of the chest cedematous, and pitting on pressure ; no affection of the bronchial mucous membrane or parenchyma of the lungs, sufficient to account for the cough, can be detected by auscultation. Considerable dulness over the situation of the heart, and extending upwards over the sternal region on the left side ; the right sternal region sounds clear and natural. The heart has not been removed from its normal situation ; its pulsations can be felt over the ordinary extent, and no more, and they communicate a natural impulse to the finger. On applying the stethoscope over the heart, its sounds were found to be regular and natural ; but on placing it higher up, over that part of the sternal region which was dull on percussion, a loud bruit de râpe was heard.

Let us analyse these symptoms. In the first place, we found the anasarous swelling occupying the left side of the chest and the corresponding arm, and in a slight degree the left side of the neck and face, accompanied by a turgid state of the jugular vein. Now, you may lay it down as a general rule, that where one side of the chest and the corresponding upper extremity is affected by anasarca, it proceeds from some cause residing in the chest. In all cases of dropsy, whether acute or chronic—whether accompanied by ascites or not—*when anasarous swelling appears in the trunk and upper extremities before it is observed in the abdomen or lower extremities, the dropsy in general is inflammatory, or, when not so and chronic, it proceeds from disease of some of the thoracic viscera*, and it is in the chest alone that we are to look for its cause and origin.

Now, applying this rule to the present case, we are led to inquire what it is that, by pressing on the veins within the chest, gives rise to engorgement of the superficial vessels on the left side of the neck, and to anasarous swelling of the left arm and left side of the chest. The pressure must, in our patient, be applied to a portion of the venous system which carries blood from the left side of the head and the left upper extremity ; in short, it must be applied to the great vein formed by the junction of the left subclavian and left jugulars. Now, this left vena innominata differs considerably from its fellow on the right side, which is very short, and nearly vertical in direction.

The vein on the left side is three times longer, and directed transversely to the right, inclining at the same time downwards. It crosses behind the first bone of the sternum, lying in front of the three primary branches given off from the transverse portion of the arch of the aorta. You perceive, therefore, that it lies in a position most convenient to receive pressure in consequence of aneurism in any of these great vessels. This vein receives, before joining the cava, the internal mammary vein of the left side; you understand, now, why anything pressing on it is apt to produce engorgement of the superficial veins on the left side of the chest and trunk, together with œdema of these parts.

That we are not to look for the cause of the disease in the heart itself appears from various circumstances. The situation of that organ is not changed; its beating can be felt only over the usual extent of surface; it communicates a natural impulse to the finger, and when examined with the stethoscope its sounds are discovered to be normal and regular. Neither can we attribute the disease to any affection of the mucous lining or parenchyma of the lung; the only morbid sounds which can be detected in the respiratory organs being a few slight bronchial rales.

Now it is sufficiently obvious that the situation of the part which sounds dull on percussion, would suggest the idea of aneurismal dilatation of the arch of the aorta, or some of its immediate branches. But had dulness over so large a space of the chest, embracing nearly the whole left sternal region, been produced by aneurism of the aorta, or any of its branches, it is evident that the aneurismal sac must be very large. When an aneurism gives rise to extensive dulness of the chest, you may be always certain that it has arrived at a very considerable size; for the dulness is caused by the immediate contiguity of the aneurismal sac to the parietes of the chest, and hence the dulness is always in proportion to the amount of lung displaced.

When you applied your hand over the sac, in such a case as that which we are now considering, where the aneurism was of large size and closely applied to the parietes of the thorax, you would feel a very remarkable pulsation; your hand would be, as it were, lifted from the chest by each impulse communicated to the sac, and you would have palpable, unequivocal evidence of the cause of the dulness on percussion. Now, in the case before us, there was no such pulsation observed—whether we examined him while lying quietly in bed, or after he had walked briskly about for some time so as to excite the action of the heart and arterial system. Again, aneurismal sacs, as you are all aware, before they produce extensive dulness of any portion of the parietes of the chest, point, as it were, in some particular situation, becoming distinctly prominent, and producing an eccentric motion around them, in consequence of the thoracic parietes being absorbed, or yielding at the point of greatest pressure.

From these circumstances, considerable doubts have arisen in my mind as to the cause of this man's symptoms being connected with aneurismal disease of the great vessels of the thorax. I am rather inclined to attribute the bruit de râpe, and dulness of sound on percussion, to a lesion of a different character. Let us suppose that in this case a tumour has been developed in the areolar or glandular substances, situated in or towards the left side of the chest, occupying the anterior mediastinum, pushing back the lung, and pressing on the large vessels connected with the base of the heart; what are the phenomena it would naturally present? First, we should have dulness of sound on percussion, corresponding in extent with that portion of the chest

to which the tumour applied ; secondly, we should have bruit de soufflet, and probably bruit de râpe, in consequence of the pressure of the tumour on the aorta ; thirdly, a tumour in this situation would necessarily compress some of the larger bronchial tubes, and thus give rise to cough and dyspnoea.

If a tumour presses on the trachea, or one of the larger bronchial tubes, why does it produce pulmonary irritation ? Not by mere pressure on the part—for the pressure is applied so gradually, and with such a broad surface, that its effects could be scarcely felt ; and it might go on to produce complete obliteration of the tube without giving rise to any inflammation, if its action were limited exclusively to the part compressed. *But it strangles, as it were, that portion of the lung to which the tube belongs ;* a certain portion of a large bronchial tube is considerably narrowed by the pressure of the tumour, the free entrance and exit of air are impeded, and consequently that portion of the lung, which may be very large, is greatly deranged in its functions. Hence arises that sensation of distress termed dyspnoea.

Again, as soon as the free ingress and egress of air are prevented, we have not only the occurrence of dyspnoea, but also other effects equally referable to the same cause ; the blood circulating through that part of the pulmonary tissue is imperfectly aërated, and does not undergo the necessary change ; the secretions and exhalations from that part are altered and unnatural, and consequently it becomes engorged, giving rise to irritation, cough, and expectoration. To understand this aright, you should bear in mind that this portion of the lung undergoes the same changes that the whole of the lung undergoes in persons who are asphyxiated ; that is, it becomes gorged with blood—for the moment that the black venous blood, which is carried into the pulmonary tissue from the right side of the heart, ceases to be properly aërated, that moment it stagnates in the lung, and soon renders it engorged. This is precisely the state of lungs which occurs in the posterior portions of these organs in persons who die a lingering death, and which has most absurdly been termed the pneumonia of the dying.

But to return to this man's case, I am inclined to think that the symptoms here present may with more colour of probability be attributed to the presence of a solid tumour developed in the chest, the nature of which I can only guess at, and that it is situated in the anterior mediastinum, close to the origin of the aorta. Some of these tumours which have been discovered in the chest are of an adipose nature ; some of them resemble the cerebral substance in colour and consistence, and others are like the steatomatous tumours formed in other parts of the body.

A few months ago Surgeon Blackley was consulted about a young gentleman who had been gradually attacked with symptoms of pulmonary irritation, cough, and difficulty of breathing. The disease was supposed by some to be consumption, and a physician who had been in attendance thought it depended chiefly on derangement of the stomach. Mr. Blackley had his doubts with respect to both of these opinions, and requested of me to visit and examine the patient. I could not detect any rales indicating the existence of tubercles, but over a large portion of the chest, and nearly corresponding with that part which sounds morbidly in the patient Byrne, there was dulness on percussion ; the young gentleman had fits of cough and dyspnoea, and now and then difficulty of swallowing ; a bruit de soufflet could be heard over the dull portion of the chest, but the sounds and impulse of the heart were regular and natural.

I expressed a very doubtful opinion of the case, but at the same time stated

my belief that the case was not one of tubercular phthisis, of empyema, or of pneumonia ; and I also said that it did not seem to be produced by disease of the heart itself. I dwelt especially on the existence of bruit de soufflet in the region which was dull on percussion, and which was somewhat removed from the heart, and which, from its situation, I interpreted as indicating something pressing either the arch of the aorta, or some of its branches. I was not able to detect pulsation or any other symptom of aneurism, and consequently professed myself unable to say what that something was.

The result proved that although the true cause of the disease did not occur to me, I had, nevertheless, approached the discovery as nearly as could be done without actually making it ; for, soon after this, the young gentleman died, and on opening the chest a large tumour of a steatomatous character was discovered pressing on the divisions of the trachea, of the aorta, and on the œsophagus. Another case of the same kind was published some time ago in the *Dublin Medical Journal*. We are, I believe, still in the infancy of diagnosis, so far as regards tumours developed in the chest, producing anomalous symptoms, and giving rise to suspicions of aneurismal or tubercular disease. With respect to the patient Byrne, I am inclined to think that the morbid phenomena are referable to a tumour of this description, and I ground my diagnosis chiefly on the absence of pulsation, which should be distinctly present if the dulness on percussion, here observed, depended on the proximity of an aneurismal sac to the parietes of the thorax.

As I am speaking of pulsation, permit me to observe that, in some cases where there is no actual disease present, the pulsations of the heart are visible over a very large extent of surface, so as to convey the impression that aneurismal dilatation exists. Of this I have lately seen a very remarkable example. In a case which I saw with Mr. Cusack, the patient's heart could be observed beating violently over the whole chest, and Mr. Cusack, when he laid his hand on the patient's chest, said he could not divest himself of the idea that there was some unnatural condition of the heart and great vessels.

Now, the violence of the heart's action in this case depended on disease of the brain. In some inflammatory or congestive diseases of the brain with a tendency to coma the heart labours intensely ; its pulsations are quite awful, and it seems as if it were about to burst through the parietes of the chest. Again, this extraordinary action of the heart occurring in cerebral disease is almost invariably accompanied by a hard bounding pulse. I mention these circumstances for the purpose of putting you on your guard, and that you should not in such cases allow yourselves to be deceived, and suppose that the symptoms are to be met in every instance by copious blood-letting. Some cases of this description will bear depletion well, others will not. You know it was a maxim of Laennec's, that in bleeding we are to be guided more by the strength of the heart's action than by that of the pulse. I have already shown that this test does not always hold good.

You recollect the patient that was under treatment here some time ago, with violent action of the heart and a hard bounding pulse. This patient, a strong healthy man, had just disembarked after a rough passage from Liverpool, during which he vomited much, and suffered intensely from headache, which he ascribed to the violence of retching. Walking along the quay, he was suddenly attacked with hemiplegia, and was immediately brought into the hospital, where he was bled and purged. Next day we found him still hemiplegic, and complaining of violent pain in the head. Active antiphlogistic treatment was used ; but on the third day he became comatose, and was

convulsed in the limbs of the healthy side. His face was flushed, his temporal arteries were dilated and pulsated violently, and his pulse was hard, while the heart pulsated with great strength. This attack came on during our visit, and I ordered a vein to be opened immediately. The blood flowed freely. When about fourteen ounces were taken, the pulse suddenly flagged and grew extremely weak, and never again rose. He died in about two hours, and an ignorant person would have ascribed his death to the bleeding. On examination, sixteen hours after death, we found extensive puriform effusion on the surface of the brain, together with a large clot of blood and surrounding ramollissement.

This was a very remarkable case, and conveyed a very important lesson, teaching us not to be too much led away by the violence of the heart's action; for I have no doubt that here the use of the lancet shortened the man's life. Had such a case as this occurred to any of you in private practice, it would be almost fatal to your reputation. Here we have a patient with his face flushed, his skin hot, his temporal arteries throbbing violently, and his pulse feeling like a piece of whipcord; he is blooded, and up to a certain point the pulse remains firm; he then begins to sink rapidly, and expires in two or three hours. Bear in mind, then, that a state of the system may exist in which the heart's action is intense, and the pulse hard and bounding, and yet where bleeding to any amount will be badly borne.

Such cases are generally connected with inflammation of the brain, accompanied by a tendency to coma. Here you must bleed with great caution, let the quantity you take away be moderate, and rather rely upon large relays of leeches and strong purgatives for removing the cerebral symptoms. You may afterwards endeavour to moderate the heart's action by the use of digitalis and opium; a grain of the former, and one-twelfth of a grain of the latter, made into a pill with some extract of hops, may be given every second hour, until it begins to produce some effect on the heart's action, when it may be either discontinued or given at long intervals, as the circumstances of the case may require.

When, after bleeding and other antiphlogistic measures, the pulse continues high, and the action of the heart violent, I can recommend digitalis very strongly, and the small portion of opium here combined with it can do no harm. Combined in small quantities with digitalis, opium does not produce any tendency to determination to the head, and it prevents the digitalis from sickening the stomach. I have frequently employed it, and found great benefit from its exhibition. I may observe, that when you are anxious to secure the full sedative effects of digitalis on the heart and pulse, you must give it in large doses. In small quantities it does not act well, and seems rather to produce a tendency to excitement of the heart.

Let me next call your attention to a specimen of incipient aneurism of the aorta found in a woman who died of chronic pleuritis. The patient was about thirty years of age, of a delicate constitution, and worn out by various diseases. She had been ill two months before her admission, and remained in hospital for three months. A specimen of this kind is interesting both in a pathological and diagnostic point of view. The aneurismal tumour did not exceed the size of a half a filbert, but on examining the inner surface of the artery, it was found that a considerable portion of the internal and middle coats had been removed by absorption, and that the external tunic, having to bear all the stress, was beginning to yield. It is not often that an aneurism of this kind is discovered; we have in it as it were the embryo of an aneurism

furnishing a most interesting subject for study. As the disease of the chest in this woman was somewhat difficult of diagnosis, I made daily examinations with the stethoscope, but had never been able to detect bruit de soufflet or any other sign connected with aneurism of the aorta.

The history of the woman's case was this. She had complained of pain and difficulty of breathing for two months before she came to hospital. On admission, she was examined with the stethoscope, and pleuritic effusion of the left side discovered. The question then was whether paracentesis was advisable. The woman was greatly emaciated, and seemed quite exhausted by hectic and night perspirations; she spit up large quantities of pus mixed with blood, and shortly after admission was attacked with severe diarrhoea. Under these circumstances, I thought it necessary to advise an operation, particularly as for some time I was under the impression that she laboured under phthisis. Subsequently, on examination, I found there was no phthisis present, but as the matter seemed to point externally, I thought proper to defer the operation. A large tumour formed over the region of the heart, which looked and felt like an aneurismal tumour in consequence of the impulse communicated to it by the pulsations of the heart. The tumour broke at last, and the matter was discharged externally with some relief, but the woman was too much exhausted to hope for recovery. She lived, however, fifty-one days after the bursting of the pleuritic abscess. You see here the left lung which adhered to the costal pleura. It does not, however, exhibit anything like an extensive effusion of lymph on its surface, which is the more remarkable as the woman had laboured under pleuritis for five months, and had been for nearly two months with a fistulous opening in her side, by which the external air had constant communication with the cavity of the pleura. There is no opening into the lung itself, and it does not present anything remarkable except some induration of the posterior part of the inferior and middle lobes. A remarkable circumstance connected with the history of this case is, that when the natural opening took place, and the pleuritic effusion was discharged externally, the secretion of purulent matter from the bronchial membrane, which had been most copious during the whole course of the disease, began to diminish rapidly, and had nearly ceased for some weeks before her death. The same thing took place with respect to the bowel complaint. It was also remarkable that the expectoration, which had been extremely fetid up to the period of the bursting of the pleuritic abscess, soon afterwards lost its fœtor, and became natural in smell and appearance.

Although digitalis acts with very great efficacy in many cases of over-action of the heart, the discovery of another remedy, free from the ill effects it occasionally produces, is a great desideratum, and I was therefore much pleased to find that in the first volume of the *Dublin Medical Journal*, Mr. Newton described a case in which the hydrosulphate of ammonia appeared to exert a very powerful influence upon the action of the heart. It was used at the recommendation of Sir Henry Marsh, who, it is stated, has found that in all the cases in which it was exhibited, it had "produced a powerful effect in lowering the pulse."

In another part of the same paper, the hydrosulphate of ammonia is by implication preferred to digitalis, which is thus spoken of: "Many objections apply to the treatment by digitalis; it is always a dangerous and often an uncertain remedy, and in even those cases in which it succeeds best, it soon loses its efficacy; its tendency to disorder the stomach is often such as to forbid its

employment; it was, therefore, a great desideratum in medicine to devise some plan of treatment which would lower the circulating system without producing permanent debility."

I have long felt strongly, as I said, the existence of the desideratum here spoken of, but have never entertained any very sanguine expectations of a remedy being discovered which would lower the circulation without producing debility. I therefore hastened, as you know, to exhibit the hydrosulphate of ammonia to many of the patients in the Meath Hospital. Some of these patients laboured under hypertrophy, with increased action of the heart; in others the heart's action was natural, and in some no disease existed except a cutaneous eruption. The remedy was given in doses gradually increased to twenty-five or thirty drops four times a-day, largely diluted, as recommended by Sir Henry Marsh. *In no one instance did it exert the slightest effect upon the heart's action or the pulse.* After it had failed in a few instances, I caused a new supply of the medicine to be procured, and the doses were administered by the apothecary of the hospital, in order to insure its being taken as directed.

I have lately seen three cases of violent and long-continued palpitations in females, in each of which the same peculiarity presented itself, viz., enlargement of the thyroid gland; the size of this gland, at all times considerably greater than natural, was subject to remarkable variations in every one of these patients. When the palpitations were violent, the gland used notably to swell and become distended, having all the appearance of being increased in size, in consequence of an interstitial and sudden effusion of fluid into its substance. The swelling immediately began to subside as the violence of the paroxysm of palpitation decreased, and during the intervals the size of the gland remained stationary. Its increase of size, and the variations to which it was liable, had attracted forcibly the attention both of the patients and of their friends. There was not the slightest evidence of anything like inflammation of the gland.

One of these ladies, residing in the neighbourhood of Black Rock, was seen by Dr. Harvey and Dr. Stokes; another of them, the wife of a clergyman in the county of Wicklow, was seen by Sir Henry Marsh; and the third lives in Grafton-street. The palpitations have in all lasted considerably more than a year, and with such violence as to be at times exceedingly distressing; and yet there seems no certain grounds for concluding that organic disease of the heart exists.

In one, the beating of the heart could be heard during the paroxysm at some distance from the bed—a phenomenon I had never before witnessed, and which strongly excited my attention and curiosity. She herself, her friends, and Dr. Harvey, all testified the frequency of this occurrence, and said the sound was at times much louder than when I examined the patient, and yet I could distinctly hear the heart beating when my ear was distant at least four feet from her chest! It was the first or dull sound which was thus audible.

The sudden manner in which the thyroid, in the above three females, used to increase and again diminish in size, and the connection of this with the state of the heart's action, are circumstances which may be considered as indicating that the thyroid is slightly analogous in structure to the tissues properly called erectile. It is well known that no part of the body is so subject to increase in size as the thyroid gland, and not unfrequently this increase

has been observed to be remarkably rapid, constituting the different varieties of bronchocele or goitre.

The enlargement of the thyroid, of which I am now speaking, seems to be essentially different from goitre, in not attaining a size at all equal to that observed in the latter disease. Indeed, this enlargement deserves rather the name of hypertrophy, and is at once distinguishable from bronchocele by its becoming stationary, just at that period of its development when the growth of the latter usually begins to be accelerated. In fact, although the tumour is very observable when the attention is directed to it, yet it never amounts to actual deformity. The well-known connection which exists between the uterine functions of the female and the development of the thyroid observed at puberty, renders this affection worthy of attention, particularly when we find it so closely related by sympathy to those palpitations of the heart which are of so frequent occurrence in hysterical and nervous females.

Another fact well worthy of notice is, that females liable to attacks of palpitation almost invariably complain of a sense of fulness, referred to the throat, and exactly corresponding to the situation of the thyroid. This sensation only continues while the paroxysm of palpitation lasts, and frequently is so urgent as forcibly to attract the patient's notice, who now complains of its inducing a sense of suffocation. Here the interesting question occurs, whether this feeling of something that impedes the respiration at the bottom of the throat, during the hysterical fit, and which has been included under the general term *globus hystericus*—the question arises, I say, whether this feeling is always of purely nervous origin. To me it appears probable that it is often induced by the pressure arising from a sudden enlargement of the thyroid, which enlargement subsides as soon as the fit is over. Of this I am certain, that the lump in the throat, of which such females complain, is often exactly referred to the situation of the thyroid; and, indeed, I have been told by other practitioners, upon the accuracy of whose observations I can rely, that this swelling in the throat of females during the hysteric paroxysm has more than once excited their wonder. It is obvious that if palpitations depending on functional disease of the heart are capable of exciting this swollen state of the thyroid, we may expect to observe the tumefaction of this gland also where the palpitation depends on organic disease of the heart, as in the following case detailed to me by a friend.

A lady, aged twenty, became affected with some symptoms which were supposed to be hysterical. This occurred more than two years ago; her health previously had been good. After she had been in this nervous state about three months, it was observed that her pulse had become singularly rapid. This rapidity existed without any apparent cause, and was constant, the pulse being never under 120, and often much higher. She next complained of weakness on exertion, and began to look pale and thin. Thus she continued for a year, but during this time she manifestly lost ground on the whole, the rapidity of the heart's action having never ceased. It was now observed that the eyes assumed a singular appearance, for the eyeballs were apparently enlarged, so that when she slept, or tried to shut her eyes, the lids were incapable of closing. When the eyes were open, the white sclerotic could be seen, to a breadth of several lines, all round the cornea.

In a few months, the action of the heart continuing with unceasing violence, a tumour, of a horse-shoe shape, appeared on the front of the throat, and exactly in the situation of the thyroid gland. This was at first soft, but soon attained a greater hardness, though still elastic. From the time it was first

observed, it has increased little, if at all, in size, and is now about thrice the natural bulk of the fully developed gland in a female after the age of puberty. It is somewhat larger on the right side than on the left.

A circumstance well worthy of notice has been observed in this young lady's case, and which may serve to throw some light on the nature of this thyroid tumefaction. The circumstance I allude to is, that from an early period of the disease a remarkable disproportion was found to exist between the beats of the radial and of the carotid arteries, the pulsations of the former being comparatively feeble, while those of the latter were violent, causing a most evident throbbing of the neck, and accompanied by a loud rustling sound. In about fourteen months the heart presented all the signs of Laennec's passive aneurism; the tumour in the neck is subject to remarkable variations in size, sometimes diminishing nearly one-half. None of her family have had goitres, nor was she ever in any of the usual localities of the disease.

DISEASES OF THE DIGESTIVE ORGANS.

LECTURE I.

GLOSSITIS—ENLARGED TONSILS—AFFECTIONS OF THE ŒSOPHAGUS—DYSPHAGIA.

I SHALL next proceed, gentlemen, to make some clinical observations on diseases of the digestive organs; but remember that you are not to expect from me any detailed observations on the symptomatology of disease; it is my intention rather to impress on your minds the marked features which individual cases in hospital sometimes present, and to comment on what you have seen at the bed-side, and the treatment which you have seen me adopt.

A case which I have attended, though not in hospital practice, induces me to make a few observations on inflammation of the tongue.

Mr. B——, a medical student, solicited my attendance. I found him labouring under severe febrile symptoms of a week's continuance, ushered in by violent rigors, great pain in the neck and occiput; somewhat relieved on the second day by profuse epistaxis. The left half of the tongue became then very tender and painful, and gradually increased in size. At my first visit it was enormously swollen, and nearly filled the entire cavity of the mouth, which could scarcely be closed on account of the protrusion of the tongue. The right half of the tongue was perfectly natural, and its comparatively diminutive size formed a striking contrast with that of the left, the median line forming a perfect boundary between the swollen and the healthy parts. Two or three applications of six leeches at a time to the inflamed half, part of which, at my first visit, appeared on the verge of gangrene, produced a speedy decrease of the tumour and inflammation. The bleeding from the leech bites was very great.

In consequence of the detumescence of the tongue, articulation and deglutition, which before had been very difficult, were quickly restored. He is at present (two years since the attack) able to speak perfectly, although the left half of his tongue is still perceptibly increased in size.

This case is interesting in several points of view. True idiopathic glossitis is an extremely rare disease. J. P. Frank only saw one case during his whole life. Four cases of it have been observed of late years in different parts of Europe;* one of which is given in a German journal on the authority of my friend Dr. Götzel, of Elbing,† a gentleman upon whose accuracy implicit confidence may be placed. In none of these cases, however, was the inflammation limited to *one half of the tongue*, and in none of them did it occur to the medical attendant to apply leeches to the tongue, a mode of treatment the great benefit of which will appear by contrasting this case with those given in the *Edinburgh Journal*, from which it appears that this disease is formidable and tedious when blood is not extracted directly from the tongue.

* See *Edinburgh Journal of Medical Science*, No. I. p. 52.

† Beobachtung einer wahren glossitis.—*Gräfe and Walther's Journal für Chirurgie*, siebentel Band, zweites Heft.

Leeches were applied by Dr. Gattel under the chin, and the general antiphlogistic treatment was actively pushed; the same was done by Dr. Maillier. In addition to these remedies, Dr. Olivet used local detraction of blood from the tongue—at first by means of incisions on the dorsum of the tongue, and afterwards by means of opening the sublingual veins. The application of leeches appears to me preferable to either.

Dr. Neligan informs me that he had a case of idiopathic glossitis under his care in Jervis-street Hospital in the year 1846. It occurred in a stout country-man, aged 40, and was caused by his working for some days up to his waist in water, in draining a river. The affection came on with rigors and the ordinary symptoms of fever, as in the case of Mr. B.; but the entire tongue was engaged, and was so enormously swollen as to prevent the patient from articulating, swallowing, or closing his mouth. Deep incisions were made transversely into the substance of the organ, which were allowed to bleed freely, and he was put rapidly under the influence of mercury; this plan of treatment proved so effectual that he left hospital on the third day, quite well.

The disease, then, would appear not to be attended with danger, but to require prompt and active treatment.

When common cynanche tonsillaris, scarlatina, measles, or any other disease which induces inflammation of the throat, attacks persons of a scrofulous habit, enlargement of the amygdalæ is a very frequent consequence. In children it is more common than in adults, and when it takes place it requires prompt attention, for if these glands be permitted to become hypertrophied, and to remain so for many years, their size becomes at last considerable, and they may be perceived as large as walnuts, leaving but slight interval between them, so that the disease being confirmed, the patient, when he grows up, is constantly annoyed by an irritation which in many produces a slight hem or occasional hawking, and in all is the source of much inconvenience or even danger, when the person, from cold or any other cause, is attacked with sore throat. Then the inflammation, which under other circumstances would be moderate, assumes a great degree of violence, the amygdalæ swell suddenly to an excessive size, and the attack is both severe and long continued.

These facts prove the propriety of endeavouring to restrain enlargement of the tonsils in children. After acute diseases, time, with a tonic regimen, country air, tepid salt-water baths, and sea bathing, will frequently remove this affection, particularly if assisted by gargles, such as warm salt water, a solution of sulphate of zinc, or infusions of astringent vegetable substances with alum, &c. When these means fail, we may try the daily application of tincture of iodine mixed with a little treacle.

The principal remedy, however, is the nitrate of silver; many use this in solution, but I prefer Mr. Cusack's method, which is as follows:—The solid stick of lunar caustic, or some of the latter in powder, and placed in a proper instrument, must be kept steadily pressed against a particular spot of the enlarged gland for two, three, or five seconds; this will leave in the part, when healed, a slight depression like the largest pit formed by a small-pox pustule. When this has been effected, which is usually in about five days, a similar proceeding must take place with the other amygdala; and so on with each, turn about, until the desired reduction of size has been accomplished. When the glands are large, this process usually requires about six months; it is slow but sure, and must be intermitted when any accident gives rise to temporary sore throat or to catarrh.

Some use ligatures to reduce these glands in size, and others cut them out; the latter operation is not altogether free from danger, as was proved in the case of a patient of mine, who, contrary to my advice, went to Paris to have it performed. The left amygdala was excised, and the gentleman was very near dying of the consequent bleeding.

The following case of *acute inflammation of the œsophagus* is particularly worthy of your attention, on account of the extreme rarity of the disease, and because its symptoms have, for that reason, been either erroneously or imperfectly described by authors.

The late Dr. Mackintosh, in his *Elements of Pathology* (vol. i. p. 228), observes—"That of all the structures in the human body, the œsophagus is perhaps the least liable to disease. In general it is difficult to detect inflammation of the œsophagus till ulceration and constriction take place. I have seen only one case of universal inflammation of this tube not caused by poison, &c." Dr. Watson, in his *Lectures on the Practice of Medicine*, makes the same remark as to the rarity of affections of this part of the alimentary canal, and says that he has seen a few cases in which he *inferred* a spontaneous inflammatory condition of the tube.

It is no wonder, therefore, that the description given by these authors of œsophagus is very imperfect; the same may be said of that given by others. The best description of the disease is that given by J. P. Frank in his *Epitome*. If I recollect right, Abercrombie has recorded one well-marked case of œsophagitis. Strange enough, this disease is not spoken of at all in that excellent work, the *Cyclopædia of Practical Medicine*.

The inflammation in the following instance was evidently the result of cold, and, occurring in a healthy habit, it ran through its course in a few days. The case is in the gentleman's own words, for when the disease was cured I requested him to give me a short account of it in writing.

"February 24th, 1835.—For some days I felt as if I had caught cold with something like sore throat. I felt as if the root of the tongue at the left side was sore. By degrees this extended downwards; a ring about the lowest part of the throat became painful on swallowing. The pain was most sensible on the left side.

"26th.—I took a bit of bread before dinner, and on attempting to swallow it perceived great pain from the commencement of the throat, proceeding downwards towards the chest, as if the bread was then impeded by something, and from thence it seemed to proceed with increased pain to the back between the shoulders. I felt no want of appetite at dinner, but the attempt to swallow caused considerable pain. The night was passed in a state of great restlessness and with headache, violent pain sometimes seizing me on some little change of position, as it does in lumbago. The pain then seemed to affect the whole chest, and extending to the back caused a hot, burning sensation directly between the shoulders.

"27th.—On attempting to swallow, I felt such pain as to force me to cry out as if the entire passage from the throat to the stomach was inflamed, and that everything, whether fluid or liquid, had to force its way painfully through the passage. In swallowing, it seemed doubtful whether the food could proceed."

So far the details were furnished by the patient himself. In addition, I may remark, that on the 28th the inflammation had evidently begun to diminish, and that in the course of a few days more it had entirely disappeared.

The treatment was restricted to abstinence and antimonial diaphoretics. There was no redness to be seen in that part of the throat which is visible when the mouth is opened.

The two following cases of *scirrhus of the œsophagus*, which were in our wards at the same time, afforded a good opportunity of comparing together the symptoms observed in each. In one, Benjamin Spear, we for a long time thought that the difficulty of swallowing was spasmodic, so completely was the power of deglutition restored (and that, as will be seen from the notes of the case, for many days) by passing an œsophagus bougie into the stomach. In the other, Thomas Berry, the patient could at all times swallow liquids with great facility. He was able to drink a tumbler of water with as much apparent ease as any healthy person, but soon after gulped up the fluid by mouthfuls: as the fluid passed rapidly into the stomach, and was only rejected after arriving there, the diagnosis was rendered very obscure, and I attributed his sufferings to disease of the stomach itself. On this account a trial was not made with the bougie, except once before the man's admission, by Mr. Murphy, the pupil who had the care of this patient while in the hospital. Mr. Murphy did not succeed in passing the bougie, but as he never before attempted this operation, we did not attach a proper degree of credit to this trial.

Altogether I should hope that the account I shall give you of the symptoms and post-mortem examinations of these two patients may prove useful in elucidating the diagnosis of stricture of the œsophagus. These cases afford another example of the fluctuating, or even contradictory, nature of certain symptoms in different individuals affected with the same disease. It is essentially necessary for the physician to be aware of this circumstance, for it teaches him that in endeavouring to make out the true nature of any affection, he must not refer to a fixed, but a varying standard of comparison. Whether these variations in the two following patients could be accounted for by any differences in the diseased parts observed after death, it is difficult to conjecture.

Thomas Berry, aged 64; admitted September 23rd; ill four months. He states that he had been always temperate and healthy, and that about five months ago he was attacked, after exposure to cold, with cough, without expectoration, pain in the side, or any other symptom for about a month, when he experienced a slight pain at the ensiform cartilage, which generally came on after eating. This continued every day, becoming more severe for five weeks, and he then experienced a difficulty of swallowing which he referred to the seat of pain, where he says his food always stopped for about two seconds, and was then rejected. These two symptoms; viz., pain at the ensiform cartilage, and inability to retain food, have every day become more distressing, and are the only things of which he complains; took no medicine before admission.

Present State.—Extreme emaciation, and great debility, having eaten scarcely anything for the last two months, being quite unable to retain either solids or fluids; the latter pass without much difficulty into the stomach, and remain there for about half a minute, but are then gradually gulped up, apparently without any effort. The cough has been very troublesome for the last few days, accompanied by abundant mucous expectoration. Never vomited any black matter, or anything except what he swallows.

Bowels have been costive since his illness commenced; frequently for eight days without a motion: appetite good; pulse 54; abdomen fallen; no tu-

mour to be felt ; the skin is shrivelled and dry, its elasticity quite impaired ; tongue clean and moist ; skin cool ; sleeps tolerably.

R Extracti Conii, granum ;

Syrupi,

Mucilaginis, āā, quantum sufficit ut fiat bolus quater in die sumendus.

26th.—Was able to retain the bolus, and also a small quantity of broth ; feels improved ; pain and tenderness in epigastrium diminished ; urine high coloured.

27th.—Cough very troublesome, preventing sleep ; abundant sero-mucous expectoration ; no change in the other symptoms.

Applicetur vesicatorium abdomini. Capiat Pulveris Conii
grana duo ter in die.

29th.—The blister did not rise, though left on for twenty-four hours ; milk now remains on the stomach, but a solid is immediately rejected. Complains of great pain in the epigastrium, where there is also considerable tenderness.

He says he knows by the sensation which the food produces when going down, whether it will be rejected or not, and he so accurately predicts this, that many suspect he has a power of bringing it up when he pleases. When it is to come up, it excites a kind of spasm, from which he seems to suffer much. Pulse 70 ; cough very troublesome ; expectoration copious, yellow mucus, mixed with a great deal of serum : no rale over any part of the chest. A sinapism was ordered to be applied over the abdomen.

30th.—Sinapism produced no effect ; took some tea and whey yesterday, which he immediately rejected, and was shortly after attacked with a severe pain about the false ribs, which he attributes to the straining ; this, with the cough, kept him awake the greater part of the night.

Turpentine stupes, and afterwards a sinapism.

October 1st.—He states that yesterday evening he felt that "*his swallow had returned*," and that his "*stomach was opened*," and immediately eat a large bowl full of stirabout and milk, all of which he was enabled to retain on his stomach. Bowels opened once ; all his symptoms are aggravated when the bowels are confined ; acetic solution of cantharides to be rubbed to the abdomen.

3rd.—The last application caused vesication, and he is to-day much improved, and can retain solids as well as fluids.

6th.—Ate some bread yesterday evening, but was unable to retain it, and has since frequently vomited ; cough troublesome ; complains of pain about the false ribs, also in the epigastrium, which is still tender ; tongue moist.

Capiat Acidi Hydrocyanici minima tria ter in die.

24th.—No material change since last note : one day he could retain his food, and the next would be unable to do so. Last night was attacked with severe pain in the right false ribs, which prevents him from taking a full breath : troublesome cough ; copious expectoration. The whole of the right side is so tender that he cannot bear the slightest pressure ; great thirst ; tongue furred and moist ; pulse 56.

26th.—The pain last night became so severe in the right side that it caused a kind of convulsion, during which he worked violently for two hours. Tongue

furred and moist; great thirst; can scarcely speak: extreme debility; has not eaten anything for the last three days.

Died on the 27th.

Autopsy eighteen hours after death.—The abdomen was considerably distended, though before death it was remarkably collapsed, and tensely concave. On opening the abdomen the stomach and intestines were found distended with air; and in the latter were hardened fæces. On raising the stomach, the coats were so thin and so much softened, that the fingers passed through them in every direction; the mucous membrane was very soft and easily detached. The last two inches of the Œsophagus were inflamed; and above this, to the extent of about three inches, was a continuous mass of scirrhus growth, contracting the Œsophagus to about the size of a goose-quill; the mucous membrane above this was thickened and softened, and could be easily separated from the submucous tissue.

Left lung healthy; the right was connected by strong adhesions to the parietal pleura, in the cavity of which was found nearly a pint of thin fluid, mixed with shreds of recent lymph; the lower portion of the lung was covered with lymph; spleen enlarged and very soft. Two of the vertebræ opposite the stricture presented knobs on their anterior surface. These knobs projected about three-quarters of an inch beyond the remaining surface of the vertebræ; they were covered with a thin lamina of bone externally, and they displayed a healthy cancellated structure, continuous with the cancellated tissue of the vertebral bodies. They consisted, therefore, of an exuberant growth of healthy bone, and they each comprised a portion of two contiguous vertebræ. The inter-vertebral substance had undergone a corresponding increase, and was prolonged so as to divide each knob into two portions. It could not be ascertained whether these bony protuberances had any connection with the production of the stricture. In this case the vomiting or rejection of the food *after it had passed the stricture* was a very remarkable circumstance; it may, perhaps, be explained by supposing that the inflammation of the Œsophagus extended to the stomach. The stomach was excessively thin and membranous; in fact it was, like all the muscles of the body, extremely emaciated.

The scirrhus mass in this man was rather considerable, and had caused a nearly complete degeneration of all the tissue of the Œsophagus. Posteriorly, where it was thickest, it was three-quarters of an inch in depth, and had evidently arrived at the stage next to that of ulceration; it was not yielding or elastic. These circumstances accounted not only for the narrowness of the stricture, but for the inflammation of the mucous membrane of the stomach and Œsophagus; on this account, too, the bougie would not pass.

In all these particulars it forms a strong contrast with the next case, where the morbid tissue was still elastic, and the structure dilatable and free from inflammation.

Benjamin Spears, aged 50, admitted into hospital August 29th. He had been a soldier, and had served many years in the East Indies; of most intemperate habits. States he has been always healthy, never having jaundice or ague; nor is he subject to cough or dyspnoea. About a month since he noticed a slight soreness on swallowing, referred to epigastric region, which continued for four or five days; when, on attempting to swallow a piece of bread, he found it stop at a part corresponding to about the centre of the ensiform cartilage, and he immediately rejected it; and since then he has been unable to retain any thing, as on its passing down it is rejected in a few

seconds without any effort : he has taken nothing for three weeks. Bowels have been confined ; had one motion each week ; appetite has been bad, and his sleep much disturbed.

Present state, August 30th.—Great emaciation ; countenance sallow, anxious ; abdomen fallen ; total inability to retain either solids or fluids. Feels, on attempting to swallow, a pain at inferior part of ensiform cartilage, to which he refers the obstruction ; the food is returned without any effort, the diaphragm scarcely appearing to act. On measuring the quantity swallowed, and after its being rejected, it is found increased, appearing to be more than the addition of the saliva would produce. Some tenderness on pressure in epigastrium and right hypochondrium ; has no pain elsewhere ; no tumour ; *no dyspnœa or cough* ; much thirst ; tongue dry and slightly coated. Bowels confined ; extremities cold ; pulse 100, very feeble and small ; respiration 15, natural ; on deep inspiration feels some soreness in right hypochondrium.

R Solutionis Ichthyocolli, fʒiij.

Tincturæ Opii, min. v. Fiat enema bis in die injiciendum.

Applicetur Emplastrum Lyttæ epigastrio.

The œsophagus bougie to be passed.

31st.—(Esophagus bougie passed yesterday by Mr. Collis, *who says he met with no obstruction* : immediately after the passing of the bougie, felt some water which he took pass beyond the obstruction ; has taken some whey since, had slight nausea on swallowing it, but it remained.

31st.—To get a pint of isinglass and milk.

September 1st.—On attempting to swallow a small piece of meat yesterday, felt considerable pain, and rejected it immediately. Is able to swallow and retain the isinglass and milk ; is greatly better.

4th.—Has had no vomiting since ; has taken the isinglass and milk regularly. Bowels are confined ; has had no cough ; was seized yesterday with a severe stitch in right side, under the mamma, attended with dyspnœa.

7th.—Had vomiting yesterday, but was able to retain some of his milk ; is very weak ; the pain in side better ; very little cough. Tongue dry ; pulse 76, very feeble.

9th.—Total inability to swallow ; every thing rejected ; refers the obstruction to same place as before ; pain in side better. Pulse 80 ; no cough. Bougie passed without difficulty.

10th.—*Retained every thing after passing the bougie* ; has much headache ; the tenderness of epigastrium nearly gone ; pain in the side better.

11th. Was seized with severe pain in right infra-mammary region last night, with much dyspnœa and cough ; had no vomiting since.

12th. Pain still very severe ; much cough ; expectoration scanty ; no vomiting.

13th. Pain still very severe ; much cough ; no vomiting.

14th. Pain still severe, preventing him from sleeping ; had no vomiting.

18th. Pain in side still continues ; is very weak ; cough troublesome ; sputa very abundant ; *no vomiting*.

25th. In same way ; *no vomiting* ; expectoration profuse ; pain less severe.

30th. In same way.

October 8th. Mentioned that he had a swelling in the perineum, which was opened by Sir Philip Crampton, and a large quantity of very fetid, thin matter discharged, from which he found great relief. Cough very severe ; expectoration abundant.

12th. Very weak ; continues in the same way ; cough severe ; expectoration profuse, of same character as before.

18th. Expectorated during the night a large quantity of puriform matter, very fetid ; is excessively weak ; pulse 100, feeble and thready ; extreme emaciation. Examined in infra-mammary region of right side corresponding to the seat of pain ; a distinct gargouillement with cavernous respiration, was for the first time audible ; pectoriloquy partial ; extremities cold.

Died at three o'clock on the 19th.

Autopsy.—Appearance of body extremely emaciated. On opening the œsophagus, all its upper part was found quite healthy, to within three and a half inches of its termination, where the stricture existed, through which the little finger could not be passed, but which admitted a large metal bougie, one-quarter of an inch in diameter. On slitting open the strictured parts, the mucous membrane appeared quite healthy, without any appearance of ulceration ; and on dissecting the mucous coat off, the stricture was found to arise from a deposit of a cartilaginous structure in the circular fibres of the muscular coats, which, as well as the longitudinal ones, were exceedingly thin, and scarcely to be distinguished ; the deposit was irregular, being thicker in one part than another. The stricture was an inch and a half in length : the mucous glands above the stricture were something enlarged ; the stomach healthy, but contracted ; and the intestines presented no morbid appearance. Strong adhesions attached the right lung to the parietes, which, on being torn through, the fingers passed into a large superficial cavity of irregular depth, corresponding to the infra-mammary region, where the acute pain was complained of ; several crude tubercular deposits existed in different parts of the lung, but none of them in a state of softness ; several small calcareous bodies were found in the apex of the same lung : left lung was quite healthy.

I shall conclude with a few observations on a curious affection of the organs of deglutition, which occurred to me in the case of a nervous young clergyman, concerning the state of whose health I was consulted by Surgeon Barker. He complained of various symptoms indicating debility and dyspepsia, but was chiefly annoyed by a painful and convulsive struggle, as he expressed it, which sometimes took place between the bit he had swallowed just before it entered the stomach, and a something that seemed to resist its further passage downwards. This lasted only for a few seconds, and was very distressing both to himself and the spectators, for, of course, it usually occurred at meals, and rendered him unwilling to dine in society. In another case, these sudden attacks of temporary dysphagia are become so habitual, that the gentleman never ventures to eat unless a glass of water be within his reach ; for in him the stopping of the descent of the bolus of food is attended with an urgent sense of suffocation. This gentleman, an excellent anatomist, thinks that the sense of suffocation is entirely nervous, or at least that it has nothing to do with any mechanical obstruction in the glottis arising from the neighbourhood of the descending food. In both these cases, the cause of the disease appeared to lie in the increased or rather deranged sensibility of the œsophagus itself. In wounds of the cervical portion of the spinal marrow, it occasionally occurs that the sensibility of the œsophagus is so increased, that deglutition is rendered impossible in consequence of pain, a fact sufficient to direct us to apply our therapeutic agents to the neck in such cases as I have related.

In fever I have witnessed several times a very peculiar species of dyspha-

gia, evidently occasioned by flatulent distention of the stomach to such an extent that the lower portion of the œsophagus partook of this condition ; at least, I conjecture so, for during the struggle of the dysphagic paroxysm, a gurgling noise was heard, as if the bit of food was met by a portion of air contained in the lower part of the œsophagus ; my friend, Dr. Autenrieth of Tübingen, has particularly remarked this symptom, or at least something like it, in what he calls the abdominal typhus fever of young people ; for he says, if the patient takes any drink, a peculiar gurgling noise is heard as if the fluid was poured into a lifeless bag. Now, in precisely such a case, Mr. Rumley and I saw a young lady affected, in addition to this noise, with so great spasmodic dysphagia, probably from the entrance of the wind into the lower end of the œsophagus, that she altogether refused to drink. This phenomenon gradually disappeared, and the lady ultimately recovered ; but it deserves to be remarked, that in general this symptom and the gurgling noise described by Dr. Autenreith are very bad omens in fever.

LECTURE LI.

DYSPEPSIA.—HABITUAL CONSTIPATION.—VARIOUSLY COLOURED STOOLS.—
INTESTINAL CALCULI.

THERE is at present in the house a case of a man labouring under a peculiar species of indigestion, for whom I prescribed magnesia. He had been for a long time suffering from chronic rheumatism, and this was combined with dyspepsia, characterized by a tendency to supersecretion of acid in the stomach, with gastrodynia and sour eructations. In addition to anti-rheumatic medicines, and enemata to keep the bowels open, we prescribed the nitrate of bismuth with magnesia, for the purpose of relieving pain and acidity. In gastrodynia, with increased secretion of acid from the stomach, one of the best remedies we possess is the nitrate of bismuth, with which I am in the habit of combining morphia, or, as in the present case, magnesia. I ordered ten grains of magnesia, twenty of powdered gum arabic, and six of the nitrate of bismuth, to be taken two or three times a day, according to circumstances: this powder was to be followed by a tablespoonful of water, containing one-sixteenth of a grain of muriate of morphia.

In such cases, if milk does not disagree with the patient, you may pour the powder into a quantity of boiled milk; allow it to cool, and then stir it with a spoon, and make the patient swallow it. The gum arabic is used for its demulcent properties, and because it enables the patient to swallow the powder with more facility; and the fluid in which you mix the powder, whether it be water or milk, it is to be used warm, in order to dissolve the gum more speedily. This is a very good combination, and I have seen many cases of dyspepsia, with acid eructations, which had resisted bismuth, prussic acid, or morphia, given singly, yield to it.

I need not state to you the reasons why magnesia and other antacid remedies are given in such cases; but it may be necessary to mention briefly the principle on which opiates are prescribed. Dr. Elliotson has shown that many of the morbid states of the stomach depend on deranged nervous energy, and that in such cases the most efficient means we can use are narcotics. As to the nitrate of bismuth, its mode of action is not very obvious; but we know that the metallic salts possess great influence over various nervous diseases as well as over morbid secretions. Witness the effects of carbonate of iron, oxide of zinc, the preparations of arsenic and antimony, and several others. On this account we prescribed the bismuth, hoping to derive some benefit from its use, as well with respect to checking the sour eructations, as to relieve the gastrodynia.

It may be well to make a few observations in explanation of the manner in which tonics and narcotics act in diseases of the stomach. Formerly physiologists were of opinion, that in weakly stomachs the act of digestion was accompanied by the formation of acid and flatulence, because the food being imperfectly acted on, was allowed to undergo the process of fermentation, a

process which gave rise to the acid and the wind in the stomach. In compliance with this view, physicians endeavoured to procure relief in these cases by prescribing a regimen little likely to undergo a fermentation capable of causing a production of either air or acid ; and they endeavoured to neutralise the bad effects of these, when produced by means of the administration of alkaline medicines.

They used, however, to be astonished at observing that many articles of food, which outside the body never formed any acid during fermentation—or more properly putrefaction, occasioned, nevertheless, when eaten, as much acidity in the stomach as any other aliments.

It was remarked also by practical men, that although present relief was obtained by means of alkalies, yet their constant exhibition seemed rather to increase than diminish the tendency to the formation of acid in the stomach. This fact could not be explained in the then state of physiology. In the year 1823, I read an essay on this subject before the Association of the King and Queen's College of Physicians, in the fourth volume of whose transactions it was subsequently published. In this essay I pointed out the true source of the acidity and flatulence observed in dyspepsia, and proved, contrary to the received opinions, that it was the result of a morbid secretion. In fact, I showed that the stomach has the power, when in health, of secreting acids and air, both essentially necessary for the solution of the alimentary mass ; and I proved that in dyspepsia this power is morbidly deranged in such a manner as to give rise to a supersecretion of acids and air. This view of the subject was soon recognised to be correct, and in consequence new methods of treating dyspepsia were proposed. Among the proposals for obviating acidity, that of Dr. Elliotson, who recommended prussic acid and other narcotics capable of acting upon the nerves of the stomach, through the influence of which secretion is effected, was found to be the most successful, and has been sanctioned by the most extensive experience.

In this essay, I also proved by chemical experiment, that the natural acid of the human stomach was identical with lactic acid—was, in fact, lactic acid ; a discovery not made by Berzelius until 1830. Nevertheless, nearly every writer on the subject since has assigned to the Swedish chemist the honor of this discovery, although I anticipated him by at least seven years ; whatever credit therefore is due to the original discoverer of this fact, I think I am fairly entitled to claim.

Another very important and frequent symptom in dyspepsia has been termed *gastrodynia*. Now the pain in the stomach accompanying gastric inflammation and long continued organic disease, is not included within the meaning of *gastrodynia*, which, therefore, denotes only the pain that occurs in dyspeptic, nervous, and hysterical diseases, and supposed to be of a neuralgic character.

In some cases its neuralgic nature is sufficiently evident, for the attack of pain is often suddenly produced by something affecting the nervous system, as anxiety, alarm, anger, &c. : and its commencement in such cases appears at times totally unconnected with any previous derangement in the act of digestion. In the case of a medical man of eminence who lately consulted me, the pain is for the most part induced by the causes just enumerated ; is sudden in its appearance, and when it subsides, leaves no traces behind ; some of the paroxysms have even continued several days, but were not followed by tenderness of epigastrium, diminution of appetite or digestive energy, or foulness

of the tongue. This is the more remarkable, as the pain he suffers is excruciating. The first attack took place twelve years ago, at which time he was about fifty years of age, and of robust frame. It lasted three days and nights, without scarcely any intermission or abatement. Since that period, the paroxysms have frequently returned, but seldom last more than four or five hours; lately, however, Mr. Houston and I visited him during a very severe attack, which continued two days, and had been induced by mental anxiety. Though the chief exciting cause is any violent impression on the nervous system, yet certain articles of diet which disagree with the stomach also produce pain. Walking, particularly after dinner, is apt to produce pain, with eructation of wind; and a walk long enough to fatigue him considerably never fails to bring it on. Most usually the attacks commence several hours after he has been asleep, and awake him at one, two, or three o'clock in the morning. This latter circumstance confirms the conclusion that the disease is neuralgic.

The pain is not relieved by oil of turpentine exhibited either by the mouth or in injections, and no permanent benefit whatever is derived from any opiate or narcotic; occasionally, when the pain is excessive, he takes large doses of opiates, but they act merely as palliatives, and in proportion to the quantity taken, produce very little effect in diminishing his sufferings. Carbonate of iron, in doses of ten grains three times a day, and continued for a week or a fortnight, has appeared more serviceable than any other medicine when the paroxysms were frequent in their recurrence. Magnesia, bicarbonate of soda, and soda water, taken in the evening, he has found soothing, and he says they produce a permanent good effect. Nitrate of bismuth had not afforded any relief. In this case the pain in the stomach did not depend on that state of the digestive organs in which acidity is the prominent feature; neither was it attended with pyrosis, properly so called; and accordingly we find that although alkalies were useful, they did not by any means cut short the paroxysm, while the nitrate of bismuth totally failed.

When the fit of gastrodynia commences, as it always does, in the case of a young gentleman lately treated by Mr. Kirby and myself, when there is much acidity of the stomach, then magnesia affords prompt relief. Some of the particulars in this case deserve notice in a practical point of view. He is thirteen years old, extremely intelligent, tall for his age, and slender. He has been subject to gastrodynia for several years; it comes on after intermissions of various durations; but since the first attack, he has seldom been a month altogether free from paroxysms. These, when they once commence, recur frequently for a week, or even a month. He is not warned of their approach by previous constipation or heartburn, but, as was before remarked, always observes himself to be affected with acidity of the stomach at the time. The attack always invariably comes on in the evening after dinner, and sometimes awakens him at night: it is accompanied by fulness, distention, and a sense of heat in the stomach, together with a dead pain extending from the epigastrium to the back. During the fit, and for some hours after its cessation, the epigastrium feels sore and tender. The fit always lasts several hours, and terminates with eructation or vomiting of the contents of the stomach, which he has latterly been in the habit of accelerating by tickling the fauces, &c. He mentioned that some of the matter he vomited fell accidentally on a pair of blue trousers, which it stained red.

In this case I tried prussic acid, acetate of morphia, and other narcotics, without any very notable effect either in preventing or relieving the pain. The nitrate of bismuth did not produce any immediate benefit; but when it

was continued for a day or two, it never failed to diminish the violence of the attacks, and finally procured a complete intermission. This medicine always acted on the bowels as a mild aperient. Antacids, however, especially calcined magnesia, were more effectual than any other medicines in relieving the pain, which they generally did in less than half an hour. All articles of diet which disagree with the stomach and promote acidity are sure to induce an attack.

This case, in its symptoms and mode of treatment, differs, then, essentially from that first detailed, and seems to point out well-marked acidity of the stomach as indicating antacids to be the best means of diminishing pain in such cases. Nitrate of bismuth also exerts a beneficial influence, and probably acts by gradually checking the tendency on the part of the stomach to pour forth an acid secretion; but it is when the fit of pain is accompanied and succeeded by an increased secretion, not of an acid, sour and discoloured, but of an insipid, transparent, and watery fluid, it is in that species of gastrodynia properly called pyrosis that the nitrate of bismuth is found superior to all other remedies; and, indeed, for such cases it was originally recommended.

As I have known some inconvenience to arise from ignorance of a suitable menstruum for taking this medicine in the form it is usually prescribed, viz., one part of the nitrate to three of powdered gum arabic, it may be well again to remind you that the patient ought to mix this powder with a wine-glass full of warm milk, which may be allowed to stand for a quarter of an hour, and ought to be briskly stirred immediately before it is swallowed.

As I am at present speaking of gastrodynia merely as a symptom, with a view of determining what means are best suited for the removal of the pain in any particular case, I shall not enter upon the subject of the constitutional treatment by which its paroxysms may be permanently averted. With regard to the neuralgic gastrodynia, it is important to observe, that although in the instance of this disease which I have detailed, anodynes were not of service, yet in general they are found extremely beneficial, not merely in shortening the paroxysm, but in preventing its recurrence, of which I have seen several examples. Concerning the utility of prussic acid, morphia, and narcotic preparations in general, in diminishing the tendency to acidity of stomach, when exhibited with judgment, it is unnecessary for me to speak, it has been so ably done by Dr. Elliotson. Their permanent good effects in gastrodynia and dyspepsia were, I believe, first pointed out in a work published by Schluter many years ago.

I have likewise derived the greatest satisfaction from nitrate of silver and stramonium in cases of gastrodynia, in which almost every other remedy had been tried without success. In such cases I frequently direct, in conjunction with the means already spoken of, diligent friction over the dorsal vertebræ with the liniment of St. John Long, for which I have already given a formula.

There is no more troublesome symptom in derangements of the digestive organs, nor any more difficult to overcome, than habitual constipation. In many chronic cases, too, it is of the greatest consequence to procure daily and regular discharges from the bowels. *Lavements* effect this purpose most conveniently, and possess the advantage of not interfering with, or weakening the digestive functions of the stomach or upper portion of the alimentary canal. Many persons, however, particularly females, have an insuperable objection to this method of obtaining relief, and acquire the habit of taking aperient medicines whenever their bowels are confined.

Various causes have combined to render blue pill and calomel almost popular remedies, to which many have recourse when their bowels are irregular, or the stomach out of order. Indeed, it is quite incredible what a number of persons are in the habit of taking these preparations, either singly or combined with other purgatives, whenever, to use the common expression, they feel themselves bilious. This habit, sooner or later, induces a state of extreme nervous irritability, and the invalid finally becomes a confirmed and unhappy hypochondriac; he is, in fact, slowly poisoned, without the more obvious symptoms of mercurialization being at any time produced.

It is almost unnecessary to observe, that although saline aperients give temporary relief, they afterwards increase the tendency to constipation, and weaken the stomach. The class of purgatives least liable to objection consists of magnesia, aloes, rhubarb, colocynth, &c., for exhibiting which many well-known and excellent formulæ are used. But even these substances, whose debilitating effects on the stomach are not near so great as that of mercurials and salts, are attended with the disadvantage of being required in larger doses in proportion as the bowels become accustomed to their action.

To remedy this evil, Dr. Elliotson has suggested a valuable combination, consisting of compound extract of colocynth with minute doses of croton oil. This I have frequently given with the best effects; but it is liable to a serious objection, for unless the croton oil be perfectly mixed with the mass, some of the pills may be too powerful, while the others are comparatively inert, and, consequently the patient is exposed to the danger of hypercatharsis, as I have twice witnessed, although in both cases the medicine had been prepared in the shop of a respectable apothecary. The following combination will, in general, serve to obviate costiveness, without diminishing the appetite or being attended with the necessity of the dose being increased as the patient becomes accustomed to its use:—

R Electuarii Sennæ, ʒij.
 Bitartratis Potassæ, ʒss.
 Carbonatis Ferri, ʒij.
 Syrupi Zingiberis, quantum sufficit ut fiat electuarium.

For the first few days I generally add about two drachms of sulphur to this electuary; but as soon as its operation has been established the quantity of sulphur may be diminished one-half, and at the end of a week it may be omitted altogether. The dose must be regulated by its effects, but in general a small tea-spoonful in the middle of the day and at bed-time will be sufficient.

The value of the carbonate of iron as a tonic aperient has not been duly appreciated; I have succeeded in curing with it alone a practitioner of eminence in this city, who had been long subject to extreme constipation, and had been reduced to the necessity of taking an enormous dose of purgatives almost every week.

When injections, carefully administered with Read's syringe, fail to remove obstinate constipation, which they sometimes though rarely do, other means must be resorted to. Some practitioners are in the habit of giving one dose of active purgatives after another, adding to the strength of each dose in proportion to the obstinacy of the case. This is an imprudent and hazardous mode of proceeding. In such cases the stomach will generally be capable of retaining castor oil; and I prefer giving repeated doses of this medicine to any others when the bowels display such an unusual degree of obstinacy, inasmuch as it may be safely accumulated in the alimentary canal, and will

in the end procure evacuations, without any of the dangers which attend repeated doses of acrid and drastic substances. I generally commence with two ounces, to be repeated every second hour until the desired effect is produced. I do not recollect who it was first made the important observation, that in obstinate constipation the first dose of castor oil must be large, but when this has acted on the bowels, the dose may be gradually diminished, provided that the medicine is continued every day for some time. I have verified this in private practice, and lately had a patient in the Meath Hospital whose bowels had resisted injections and the strongest cathartics. Three ounces of castor oil continued for two days in succession, two ounces on the next day, and one ounce on the fourth, were found quite effectual. In some the daily dose may be thus gradually diminished to a tea-spoonful at bedtime.

When a tendency to constipation is habitual, and the patient is not effectually relieved by the daily use of injections, and when the peculiar circumstances of the complaint render the administration of aperient medicines by the mouth inadmissible, great advantage may be derived from the application of purgative liniments to the abdomen. The one I have found most useful consists of four parts of castor oil and one part of tincture of jalap. This must be diligently rubbed into the region of the stomach every morning before the patient rises, and it must be done under the bed-clothes, lest the unpleasant odour should sicken the stomach. I am indebted to a medical friend for this suggestion, which I used with success in the case of a young gentleman whose state had become almost hopeless.

In constipated habits, I have likewise occasionally derived very remarkable benefit from the use of nitric acid given in sufficient doses. It seems, like the carbonate of iron, to possess the advantage of combining tonic with aperient qualities.

In connection with this subject, I may remark, that long-continued and repeated attacks of constipation, by enlarging the cæcum and colon, lay the foundation of other diseases. This happens most frequently in females, but is not uncommon among males. In such cases the enlargement of the intestines may occasion either of two distinct forms of disease, both attributable to the retention and accumulation of hardened fæces. In one form the symptoms are calculated to mislead the medical attendant, by inducing him to believe that his patient is labouring under chronic hepatitis. Pain and tenderness, and in some hardness, or even a degree of enlargement, are perceptible in the right hypochondrium, while the patient's aspect is bilious, and he not unfrequently complains of pains in the right shoulder. At times he is subject to violent fits of cholic, or to what he compares to cramp in the stomach, particularly after the bowels have been confined, after eating vegetables calculated to generate flatulence, or after exposure to cold.

In the other form, the general health suffers less; the pain and other local symptoms referred to the right hypochondrium are not complained of, but the patient is occasionally subject, particularly on exposure to the action of the causes before enumerated, to violent attacks of vomiting and pain in the belly, which are accompanied by the characteristic symptoms of intestinal obstruction. The circumstance that the immediate attack was apparently induced by some palpable and known cause, such as an error in diet, or exposure to cold, may here deceive the practitioner, and cause him to overlook the fæcal accumulation, without whose removal recovery cannot take place.

I and two other practitioners were several times deceived in the case of a

gentleman of a robust constitution and great strength of body; and the true cause of the sudden and dangerous colics to which he was subject, was not discovered until he happened to mention that, when a young man, he seldom went to stool more than once a week. This led to the suspicion of an enlarged colon, and, ever since, the attacks have readily yielded to large injections administered by means of a Read's syringe, without which instrument he now never ventures to travel. The practical point that strictly claims our attention is, that the period of life at which the patient becomes subject to these attacks is often long subsequent to the cessation or diminution of the habit of constipation, and consequently the physician will not perceive the true cause of the complaint unless he questions the patient very accurately.

I believe that I was the first to call attention, in the fourth volume of the *Dublin Hospital Reports*, to the peculiar colour which the stools sometimes present, and to the cause of this change from their natural appearance; but Dr. Golding Bird, and others who have recently observed on this fact, omit all notice of my remarks. The first case which attracted my attention to this subject, was that of a gentleman who applied to me, labouring under the following symptoms:—he had been severely attacked last autumn by dysentery, then epidemic. The complaint, during its acute stage, was treated in the usual manner, and the febrile symptoms and passing of blood had ceased for many weeks; he had a good appetite and tolerable digestion, but was becoming daily more emaciated and weak. He had one or two natural stools daily, without tenesmus. He complained, however, of eight or ten sudden calls to stool during the twenty-four hours, attended with an impossibility of resisting the bearing down and weight felt in the rectum, so that the evacuation often followed before he had time to retire to the water-closet. These evacuations were preceded by no premonitory sensations, and consisted merely of two or three table-spoonfuls of muco-gelatinous matter, which varied in colour and consistence, generally resembling thick milk or puriform fluid, and occasionally a transparent tremulous jelly.

This fluid was evidently a secretion from the mucous membrane of the rectum in a state of irritation or sub-inflammation; such a condition of a mucous membrane constitutes the disease denominated chronic bleorrhœia, and when it occurs in the rectum, produces a disease, which on account of the white colour of the discharge, would formerly have been called *fluxus celiacus*,* and the evacuation attributed to the loss of chyle by stool, for the chyle was supposed to be formed but not absorbed or carried into the system. I should not have noticed this singular mode of explaining the whiteness of the evacuations, were it not retained by the late learned Dr. Good, in his *Study of Medicine*. In the June number of *Hufeland's Journal*, 1825, Dr. Rummel compares together the various descriptions of this supposed disease given by authors, and shows the mistake they all committed in believing that there was such a disease as *diarrhœa chylosa*, the existence of which he completely disproves.

That Dr. Good should have retained the old species *diarrhœa chylosa*, is less surprising than that he should have inserted a new one, whose existence rests upon still more doubtful evidence. This new species he names *diarrhœa gypsata*, from the evacuations, which consist of a matter resembling in its appearance a mixture of water and lime, which appearance he supposes actually

* *Diarrhœa cœliaca*, qua humor lacteus specie chyli deijcitur.—*Cullen's Nosology*.

owing "to earthy particles diffused loosely and separately through the fluid with which they are discharged."

Dr. Baillie, who first described these peculiar white discharges, observes that they *seem, as to their colour*, to depend on a copious secretion of calcareous matter from the intestines; "*but that their calcareous character has not yet been put to any chemical test.*"

As I have often seen stools of the colour here described, but which owed that colour not to the presence of lime, but to the absence of bile, and a secretion of white viscid mucus from the intestines, I must reject this species of Dr. Good, at least until further evidence of its existence be adduced. If such a disease really exists, the earthy matter will probably be found to consist of phosphate of lime.

Viscid and whitish discharges from the mucous membranes lining the eyelids, bronchial tubes, urethra, vagina, &c., are extremely common, and depend on a state of irritation similar to that which produces the white and scanty alvine evacuations arising from the mucous membrane of the rectum.

It is evident, from the case I have related, that chronic irritation of this part may produce much constitutional distress. When, however, the affection extends beyond the rectum, to the other portions of the large intestines, it occasions symptoms still more urgent. That a similar state of the mucous membrane lining the small intestines may occur, and give rise to a white secretion from its surface, is proved by examination of their contents, in persons who had died of the Asiatic cholera, in many of whom white milk-like stools have been observed during life. These stools were found on dissection to depend on a secretion from the small intestines. The *diarrhoea alba*, described by Hillary as occasionally epidemic in Barbadoes, probably arises from a similar cause.

It is unnecessary to detail the various remedies fruitlessly employed in the case above related, for the purpose of checking this discharge from the rectum. None proved of any material benefit, until at length I resolved to try strychnia, on the authority of Dr. Rummel, who had employed the extract of *nux vomica* with great advantage in this complaint. One-twelfth of a grain of strychnia, given in the form of a pill twice a-day, completed the cure in about three weeks.

Dr. Rummel observes, "that after endeavouring to remove the original cause of the disease, the best remedies are narcotics, combined with strengthening and astringent medicines. *Nux vomica* possesses a peculiar power in controlling blennorrhœa of the rectum." In the cases he relates, Dr. Rummel used various astringent tonics, as sulphate of iron and calumba, besides medicines such as sulphur, which are known to exert a peculiar action on mucous surfaces. The cure was in general facilitated by the addition of soothing doses of hyoseyamus or opium. These means, combined with a judicious use of the *nux vomica*, will seldom fail to check the discharge, and restore the healthy action of the rectum.

Black or very dark stools may be caused, first, by an effusion of blood into the intestines, causing *true Melæna*, which I have before spoken of in my lectures on fever; secondly, by black bile. The *atra bilis* was looked on as the only cause of black stools, until the nature of true Melæna was pointed out by Hoffman, and afterwards by Home. The presence of black bile as the colouring matter of such discharges is acknowledged by Mr. Abernethy. "The black colour of the discharge shows, I think, that the secretion of bile was not healthy, and that the liver was affected with the other chylopoietic

viscera." It would, I think, be easy to prove that in the very case from which Mr. Abernethy draws this conclusion, the black stools did not depend on black bile ; but on the *third cause* of such stools, viz., a secretion of dark coloured matter from the mucous surface of the alimentary canal.

I shall not, however, contest this point, because Mr. Abernethy acknowledges, in another place, the agency of the cause whose existence I am contending for. "It seems probable," says he, "that the stools which resemble pitch are principally composed of diseased secretions from the internal surface of the intestines, since they do not seem either like the residue of the food, or discharges of the liver." After which he adds what appears at variance with his former opinion, "Can we suppose that all the black and fetid matter which was discharged from the bowels in the first case was poured forth solely from the liver?"

In a very remarkable case I had under my care, and in which very great quantities of matter sometimes of the consistence and colour of tar, and sometimes resembling ink, were passed by stool for ten or twelve days in succession, the black colour was evidently derived from the mucous membrane. A frequent examination of the discharges showed that this colour was not derived from blood ; for it was quite evident that in such a case the blood could not have remained in the intestines very long after its effusion, for the stools were frequent and copious ; and I know by experience that in true melæna, blood which has been retained even for a considerable time in the intestines will tinge water red, which was not the case here. In true melæna great debility and frequent fainting follow the evacuations if very copious ; but in the case here referred to, and I believe in all others of a similar nature, the discharge of the black matter is followed by a feeling of relief to the system.

Mercury had no effect on the appearance of the stools, nor was there any symptom of hepatic disease ; but a temporary improvement in their appearance always followed the internal use of stimulants, such as oil of turpentine, and the case finally yielded to the use of this and other stimulating tonic remedies. That the great quantity of black matter passed by stool was owing to an increased and vitiated secretion from the intestinal mucous membrane, was proved by the following experiment : I cleaned one-half of the tongue, from which I washed, with much difficulty, the black tenacious mucus. I watched it for several hours, and found that the part I had cleaned became gradually black and foul, the black mucus being evidently a secretion from its surface. Analogous to this case is one which was formerly under the care of Mr. Wilmot, and in which large quantities of blackish mucus were discharged *from the bladder*.

A patient who is at present in the chronic ward also presents some circumstances worthy of observation, as connected with peculiar varieties in the alvine discharge. She has been labouring for some time under melæna, and, as you have observed, passes daily a large quantity of dejections from her bowels as black as ink. I have already remarked that the colour of matters discharged from the bowels is subject to very great variety. In some cases they are clay-coloured or whitish, somewhat like barn ; and I have seen them still whiter, and approaching the hue of milk. It is in cases of the latter kind, where the discharges are of a milky appearance, that persons, as I have told you, have been said to pass chyle, and their emaciation used to be attributed to a deficiency of nutriment depending on this cause. This, however, is not the fact : in some cases of chronic dysentery and diarrhœa, a fluid

whitish discharge takes place from the rectum; but this is not chyle, it is only the changed mucous secretion of the irritated portion of the bowel. It is very curious to observe what different products the same set of secreting vessels will give rise to, according to the mode in which their vital action is affected. In other cases the discharges from the bowels consist of fatty matter, which bears a strong resemblance to wax, or adipocire. Again, we may have them of a very dark or even black colour, when, as I just now remarked, the colour may depend on one of three causes.

I have seen the stools quite black in particular forms of dyspepsia. Some time ago I attended a gentleman at Drumcondra, who exhibited this change in the colour of the intestinal secretions to a very remarkable degree. He was a very large man, accustomed to eat and drink very heartily, having, no doubt, a very capacious stomach and bowels, and a great quantity of fluids and solids. I mention this in order to give some explanation of the enormous quantities of this black fluid which he passed by stool and vomiting. After complaining for a considerable time of dyspeptic symptoms, he got an attack of vomiting; and as he drank freely of diluents during the act of emesis, the quantity of this black fluid which he threw up was amazing, indeed, I might say without exaggeration, he vomited by the gallon. With this he had eructations of sulphuretted hydrogen to such an extent, that it was almost impossible to remain in the same room with him. His tongue was as black as ink, and like the other case I mentioned, though frequently cleansed, resumed in a short time its former hue. He also passed an enormous quantity of the same stuff by stool. This matter I ascertained, by numerous observations and experiments, to be a secretion from the mucous membrane of the bowels, and not depraved bile, or blood changed by the acid secretions of the bowels.

Melæna consists of a discharge of grumous blood from the intestines, either with or without black matter. The following is the way in which it occurs. Blood is secreted slowly into the intestinal tube; while it remains there it is acted on by the acid secretions of the intestines, the effect of which is to change the colouring matter into black, and in this state it is passed by stool. The blood effused in melæna coagulates in the bowels, and being exposed to heat and air, turns black, and often becomes fetid. When retained very long, the colouring matter may be washed away, and the coagulated fibrin left. In a dissection of a woman who died of melæna at Berlin, I found in the large intestines many hard balls, the size of apples, and *consisting of fibrin deposited in concentric layers*, evidently the result of successive separations from the blood, effused during several different attacks.

Again, there are other cases in which the discharges from the bowels are found of a tarry and viscid consistence, and having a greenish-black appearance; this would appear to be connected with a vitiated state of the biliary secretion.

I have spoken here of three species of black discharge, each of a different kind, and requiring to have a distinction made between them for practical purposes. Now, it is said if blood be present you can easily recognise it by putting a portion of the discharge, inclosed in a small linen bag, into warm water, when, after remaining some time, the linen will be stained of a reddish colour. If you take a portion of the tarry discharge, and drop a little of it into water, it will communicate to it a yellowish stain. On the other hand, the black fluid, which consists of vitiated mucous secretion, will not impart either a red or yellow tinge.

I may further observe, that various substances used medicinally commu-

nicate a particular tinge to the alvine discharges. Thus acetate of lead, when it meets with sulphuretted hydrogen in the intestines, changes the stools to a black colour. Again, many of the salts of iron have the same property. Other substances, such as logwood, bilberries, &c., impart to them a red tinge, while the continued use of chalk mixture is apt to render them whitish or of the colour of pipe-clay. This is apt to give rise to suspicions of the existence of obstruction of the liver, and in one instance I was deceived for some time by it myself.

With respect to the greenish-coloured discharges, they are those which are most frequently met with, particularly in children, and are therefore entitled to a greater degree of consideration. There is nothing more common than to meet with cases of this green discharge during the period of infancy, and I regret to state that a great deal of error has prevailed on the subject. Greenish stools are generally looked upon as a sign that the child's liver is out of order, and as an indication for giving calomel. This, however, is by no means true; they not unfrequently depend upon irritation of the intestinal mucous membrane approaching to inflammation. The proper mode of treatment here consists in adopting measures calculated to remove irritability. In such cases warm baths, the application of rubefacient liniments to the abdomen, the use of antacids, such as chalk mixture, the carbonates of soda and ammonia, small doses of laudanum, and hydrargyrum cum cretâ with Dover's powder, form the best remedies, and their operation will be very much assisted by a careful attention to diet.

You will sometimes, it is true, meet with greenish discharges in adults, but then they are not so fluid as those of children, nor are they attended with the same irritability of the gastro-intestinal mucous membrane. Here the best plan of treatment is the Abernethian: blue pill at night, and a mild aperient in the morning, which will be sufficient to correct the intestinal derangement, particularly if assisted by a well-regulated diet and exercise in the open air. But in children the greenish discharge is often of a much more acute character, and more closely allied to inflammation, or rather irritation; although in some cases it may go on for a considerable time without producing any acute disorganization.

It is on account of the property which calomel and other mercurials, exhibited internally, possess of causing irritation in the first instance, and if pushed farther, inflammation of the mucous membrane of the intestines, that they are also apt to produce discharges from the bowels, copious, fluid, and mixed with green mucous flocculi, resembling closely chopped *spinach*. Sometimes the dejections consist of this green mucus nearly unmixed with anything else, and then they appear like semi-fluid boiled spinach. Now, most practitioners think that this green colour is derived from the bile which the mercurial has brought down in unusually great quantities from the liver, excited to a more energetic act of secretion. It has nothing to do with the bile in many cases, but is entirely derived from the irritated membrane of the intestines.

Before leaving this subject, let me call your attention to the following singular case in which there were evacuations of blood from both the stomach and bowels, evidently caused by the irritation of chlorine. It is that of Julia Casey, of phlegmatic temperament. She is a servant, and was attending her master, who died of cholera six weeks ago, and she remained in the house along with another female servant, considerably younger than herself, in order to clean the furniture.

The apartments were fumigated with chlorine, and although obliged to re-

main in them, as before mentioned, they were directed to keep the windows and doors constantly closed, to render the disinfecting powers the more effectual. This was repeated day after day for some time.

From the first day she felt pain in the chest, with stuffing, choking, and tightness of the præcordial region which were very oppressive. Then she felt pain over the epigastric region, and could not bear to lay her hand upon it from soreness. These symptoms persisted for several days.

She describes very unpleasant sensations arising from the epigastric region, and passing upwards along each side of the sternum, and along the neck on each side of the trachea, and up into the head. She had great cough. This state continued for four or five weeks. Latterly she used to feel faint, and quite unable to continue working, if not permitted to sit a while in purer air.

One morning she was seized with sudden vomiting. A quantity of dark liver-like blood was thrown off her stomach, without much effort at straining. Shortly after she took castor oil, which she repeated immediately, and then passed some hard blood by stool, and vomited again black blood. This occurred several times during three days. The blood which was passed the latter part of that time was clearer and brighter than the earlier effusions. This pouring forth of blood relieved the præcordial oppression, and sense of suffocation, &c., nor had she any pain with these evacuations. During these attacks she was often senseless (this might be from the loss of blood merely, or it might result from the noxious influence of the gas); she did not cough up blood. The other servant, who was with her during the whole time, was frequently seized with coughing and spitting of blood. She complained often of stuffing in her chest and stitch in her side, with soreness. She took pills which checked the hemorrhage,—from her account they would appear to have been acetate of lead. Since admission she has only passed blood once by stool. She was insensible when they removed her. The surface of the body is exsanguineous; pulse very feeble.

Under the use of a mild diet and gentle aperients this woman gradually recovered.

In the commencement of this lecture I have alluded to the employment of magnesia as an antacid in derangements of the digestive organs. Formerly, when this medicine was more employed than it is now, its long-continued use not unfrequently caused the formation of calculi in the intestines. To prevent this, Sir James Murray introduced a preparation which he termed “fluid magnesia,” in which the magnesia is dissolved in water by an excess of carbonic acid. That this had the desired effect is manifest from the extreme rarity of magnesian calculi in the intestines in the present day: but I think it right to mention to you, that *calculi in the intestines may follow the long-continued use even of the fluid magnesia*. I have seen two instances in which this occurred; one of them was in a highly intelligent medical friend, who has kindly favoured me with the following report:—

“For a considerable period, say two or three years, I was in the habit of taking, whenever I felt any dyspeptic symptoms, a wine-glass full of the magnesian water, as prepared by Sir J. Murray and Messrs. Thwaites, of Sackville-street; and during that time, whenever I got cold and became ill, I generally felt pain in the right iliac fossa, which, on taking medicine, disappeared.

“A repetition of these attacks required the use of leeches. The last attack, I think, occurred in March, 1843.

“I was sitting in my study reading, not feeling very well, when suddenly

I felt very acute pain in the right iliac region, with a feeling of faintishness, upon which I went to bed, and had myself well stuped, and sent for Dr. Graves; but my condition being so very alarming, my wife sent in all directions for assistance, and in about half an hour there were five medical men beside me, who applied turpentine stupes, and as my skin had been well softened by the warm water I had used before they came, the torture I suffered was very great. I was soon after well leeches, and ordered a full dose of turpentine and castor oil, which remained ten hours in my stomach, when I threw the entire of it up.

"Writing from memory, I forget the detail of treatment, but having become convalescent, Dr. Graves advised me to take every morning a teaspoonful of castor oil in warm milk, which I continued to take for some time, and to which treatment I entirely attribute the breaking up of the mass, though the existence of it was never suspected.

"Having made arrangements for going to England, I felt what I feared were inward piles, and sent for my lamented friend, the late Dr. Houston, who, after examination in consultation with Dr. Beatty of Merrion-square, said I had fissure of the rectum, and urged the necessity of applying nitrate of silver, which he did, but the torture I suffered for ten hours after is not to be described.

"Without entering further into my condition then, I shall merely state that it was at that time I got rid of the lodgment. The anodyne I was obliged to take to allay my suffering at three different times after the application of the caustic, produced a great confinement of the bowels, so as to induce Dr. Houston to order me a very strong purgative draught, which effectually carried off the mass.

"On going to the night chair I perceived a most peculiar odour, which I conceived arose from the ulcer produced by the caustic, and the great pain of the matter passing over the sore. However, on getting up, I found that the discharge consisted of a multitude of round whitish bodies floating in a cream-coloured fluid, emitting a most peculiar odour, and one of them the size of a large horse-chesnut with the sharp thorns cut off; this I removed, and put into clean water. It was analysed by Dr. Aldridge. There was also a perfect grape, which must have been at least six months in the cœcum or behind the mass, as I distinctly remembered the last time I had eaten grapes, when that must have been swallowed whole, this I have preserved in spirits.

"The statement I have given will, I fear, be far from interesting; but the facts I desire to convey are—

"1st. That a deposit took place from drinking magnesia water, and which deposit settled in the cœcum, where it remained a considerable time.

"2nd. That during a very severe illness, in consequence, no doubt, of such deposit, I was ordered by Dr. Graves to take small doses of castor oil every morning, and which I am quite satisfied acted mechanically by insinuating itself between the bodies forming the mass, and which was finally carried off by a strong purgative draught, ordered by the late Dr. Houston, when under his care for fissure of the rectum.

"3rd. That since then I have never felt the same or any uneasiness in the right iliac region.

"4th. That I have never tasted magnesia water since, or felt in the least disposed to do so."

Professor Aldridge has informed me that the specimen here alluded to, which he analyzed, was composed of *carbonate of magnesia* mixed with some animal and vegetable matters.

LECTURE LII.

DIARRHŒA.—DYSENTERY.—PERITONITIS.—ULCERATION OF THE STOMACH.—
ENTERITIS.—HEMORRHOIDS.

HAVING lately used, with very considerable success, in the treatment of diarrhœa, a preparation first introduced by Mr. Kerr of Glasgow, namely, the pernitrate of iron, I shall make a few observations here on its properties and use.

The combination of iron with nitric acid forms a remedy possessing tonic, and, at the same time, astringent powers, and hence peculiarly well adapted for the treatment of certain forms of chronic diarrhœa and dysentery. You will be consulted by females of a delicate and weakly habit, who frequently exhibit symptoms of nervous derangement, such as palpitations, sleeplessness, and headache, who are easily excited or alarmed, have a tendency to emaciation and paleness, and have little or no appetite. Combined with these general symptoms, you find that they have been labouring under diarrhœa for weeks, and even months, and that this, with the other causes of debility, has rendered their condition exceedingly uncomfortable. You will also be informed by the patient that she had tried many remedies without benefit, and that she is extremely anxious to have something done to give relief; and hence it is a matter of importance to be acquainted with any remedy which may be likely to prove serviceable in such emergencies.

It would appear that this form of diarrhœa does not depend on an inflammatory condition of the stomach and intestinal canal, for the indications of inflammation are absent, such as pain, tenderness on pressure, thirst, redness of tongue, and severe or continued griping. It would rather seem to be connected with congestion of the mucous membrane of the digestive tube of a passive nature, and resembling the scrofulous; it is also of an unmanageable character, and very seldom amenable to the ordinary modes of treatment. The common astringent remedies totally fail; chalk mixture, kino, rhatany root, and catechu are useless, and in such cases it has been observed that opium is generally injurious. If you prescribe opium it certainly checks the disease for a time, but this temporary relief is accompanied by debility, malaise, restlessness, and many other uneasy symptoms, and the diarrhœa soon returns, and is as bad as ever.

The medicine which I have found most effectual in such cases is the pernitrate of iron. With it I have succeeded in curing many cases which have been exceedingly obstinate, and of very considerable duration, the disease having in one case resisted all the efforts of medical skill for seven months, and in the other for two years. Seven or eight drops of the liquor ferri pernitratæ, increased gradually to twelve or fifteen in the course of the day, was the quantity prescribed in both cases. In the course of four days a slight diminution of the diarrhœa was perceived; in a fortnight the patient felt much better, and in a month or five weeks it had disappeared altogether. This took place without being followed by any bad effects; there was no swell-

ing of the stomach, no tympanitis, no tormina, restlessness, or nervous derangement; the patients recovered their health and strength, and the cure was at once safe and permanent.

The effect of this remedy admits of an explanation on either of two grounds. You are aware that nitric acid exercises a very powerful influence over many morbid discharges. In chronic diarrhœa or dysentery, and in a certain form of diabetes, it is one of the most efficient and appropriate medicines which can be prescribed. We can, therefore, understand its peculiar adaptation to the case of which I have spoken. The nature of the complaint requires a tonic as well as an astringent; and you all know that nitric acid is used as a tonic in many cases attended with debility and emaciation.

With respect to iron, its mode of action is equally intelligible. Many of the salts of iron exert a very remarkable influence on the conditions of mucous membranes. The sulphate, tartrate, and many other preparations are prescribed with great advantage in chronic fluxes from mucous membranes; hence the benefit so frequently derived from the use of Griffith's myrrh mixture in the treatment of chronic bronchitis characterised by a supersecretion from the bronchial membrane, unaccompanied by fever. You perceive, then, both the medicines which enter into the composition of pernitrate of iron are well calculated to check morbid discharges and strengthen the tone of the system. The only objection to this remedy is, that it is apt to spoil: if kept longer than a few weeks it is decomposed, and hence you should always take care to have it quite fresh when you prescribe it, in order to secure its full operation. Mr. Kerr, who was the first to introduce this remedy to the notice of the profession, has published an interesting paper on its effects in the *Edinburgh Monthly Journal* for May, 1848. He gives a new formula for its preparation, and speaks highly of its employment in the form of enema. He states, also, that he has used it with much benefit in several cases of urticaria.

I have lately had occasion to observe the good effects resulting from a combination of nitric acid, with vegetable astringents, in a little girl three years of age, in whose case I was consulted by Mr. Wallace of Townsend-street. She was of a strumous habit; her appearance was that of a delicate but not very sickly child, and, in spite of the long continuance of the complaint, she was active and lively, although her appetite was small. Four or five times during the day, and six or seven during the night, she was seized with a slight griping pain, and a sudden desire to evacuate the bowels. Each evacuation was scanty, and consisted of muco-fæcal matter. A great variety of the usual remedies had been tried—alterative doses of mercury, purgatives, astringents, opiates, &c. I prescribed the following mixture, which had the happiest effect, and performed a speedy cure:

R Decocti Hæmatoxyli, fʒiv.
 Vino Rubri Lusitanici, fʒj.
 Acidi Nitrici diluti, min. x.
 Tincturæ Opii, min. v.
 Misce, sumat cochleare unum medium quater in die.

You will recollect that nitric acid, when given in large doses, often produces diarrhœa, as in the common combination of one drachm of dilute acid with a pint of decoction of sarsaparilla.

You have seen me employ the nitrate of silver in the case of a man above stairs labouring under phthisical diarrhœa: I wish now to offer a few remarks on the use of this medicine. Where diarrhœa occurs in phthisis, you generally

find it treated by the exhibition of chalk mixture, with tincture of opium and kino ; but this combination goes too far : it not only stops the diarrhœa, but also brings on the sweats in an aggravated degree. The nitrate of silver is much better ; and nothing, in my opinion, arrests the colliquative diarrhœa which attends consumption in a more satisfactory manner than a grain of the nitrate of silver given three or four times a day. The nitrate of silver removes the diarrhœa without producing, like opium, any increased tendency to perspiration, and in this way is much more valuable than the former combination.

Probably the sulphate of copper would answer the purpose equally well. I speak not here of the diarrhœa which is attended with ulceration of the bowels, as in such cases the latter remedies are not indicated. I am persuaded, however, that many cases of diarrhœa, particularly in incipient phthisis, arise from what may be called *sweating of the bowels* (the colliquative diarrhœa of the ancients), and not from ulceration of the Peyerian glands, as supposed by most modern physicians, and that the skin and mucous surface of the intestines may alternately perform analogous functions. As to the diarrhœa which is connected with ulceration, and accompanied by tenderness of the abdomen on pressure, it is generally in the second and third stages of phthisis that it occurs.

We dismissed a case of dysentery lately from our wards concerning which I promised to make a few observations. During the months of August and September last, we had in Dublin several cases bearing a decided analogy to the dysentery of Cullen. There were fever, griping, tenesmus, a constant inclination to go to stool, without being able to pass any thing but a little mucus and blood, and occasionally scybala. In this form of disease, some authors are inclined to attribute all the bad symptoms to the presence of these scybala, which are small hard lumps of fecal matter, evidently formed in the sacculi of the great intestine. You will find others asserting that this cannot be the case ; for in many dysenteries there are no scybala at all, and that even when they do occur, they have no connexion with the disease. The latter take no account of scybala, while the former state that the diseased condition of the intestine depends upon the irritation produced by them, and that you never can expect to cure the disease without getting rid of them by active purgatives. For my part, I believe that there are certain dysenteric states of the great intestine, in which the main cause of the disease arises from the lodgment of quantities of hard, unhealthy, and long retained fecal matter ; but in cases of epidemic dysentery, I do not think that scybala have any thing to do with the formation of the disease, or the aggravation of its symptoms.

In the present case, the affection appears to have been pure rectile dysentery, depending almost exclusively on inflammation of the rectum, not extending to the sigmoid flexure of the colon, and certainly never as far as its arch. The symptoms present were fever, increased heat of skin and quickness of pulse, with a feeling of heat and pain in the situation of the rectum ; for the first day the discharges consisted of mucus and blood, combined with fecal matter ; but after this, the mucus and blood were voided alone, with great griping and tenesmus, and the patient was obliged to get up to the night-chair thirty times in the course of twenty-four hours. There was, however, no symptom indicating that any portion of the intestine beyond the rectum was affected. Now, what was the consequence of this state of things ? The

inflammation of the rectum gave rise to constant spasm of that organ : the colon partook more or less in its spasmodic action, and hence every attempt to pass the stools was resisted. Here, however, the fæces lay in a portion of the intestine free from inflammation ; they could not produce any aggravation of the symptoms, and the scybala were to be looked on as the consequence and not the cause of the disease. Now, whether purgatives were given by injection or by the mouth, they would have done no good in such a case as this ; we might have copious fecal discharges, but without the slightest diminution of the local symptoms. I do not mean to say that there are not dysenteries in which purgatives are not highly useful, but in the case before us, where the disease was limited to the rectum, I did not think that any benefit could be derived from them. I confined my attention, therefore, entirely to local means directed to the part inflamed, applied leeches to the anus, gave narcotic and emollient enemata, and after I had in this way relieved pain and irritation, I combined with the enemata, first, a small quantity of the acetate of lead, with a view of restoring the tone of the relaxed mucous membrane, and afterwards changed it for the sulphate of zinc. Under this treatment the case went on very favourably, and we have been able to dismiss the man in a very short space of time.

With reference to the treatment of chronic dysentery, I wish to make a remark to you which is based on long experience, namely, *that meat is far too much refrained from*. I have found several cases which had obstinately resisted the most varied remedies assiduously employed, get well rapidly after a liberal allowance of meat was given ; and at present, when called on to treat a case of dysentery of long standing, the first thing I do is to put my patient on full meat diet.

Let me now direct your attention for a few moments to a case which presents some interest, as connected with the obscurity of its nature ; I allude to that of the young woman, Moran. She came in on Monday week last, with symptoms of ordinary continued fever, for which the only remedies employed were effervescing draughts, diluents, and a proper attention with regard to diet. She had some headache, which went away a few days after her admission ; and, as she made no other complaint, her case was looked upon as one of simple fever. Some time afterwards, it was observed that her abdomen was tympanitic, and that she had diarrhœa ; but she persisted in denying that she had any abdominal pain or tenderness. In addition to this, symptoms of bronchial inflammation set in, but without any remarkable distress of respiration, or acceleration of pulse. She made no complaint whatever, and seemed extremely unwilling to communicate any information respecting her condition. Under these circumstances, all that could be done was to treat the symptoms as they became manifest, and accordingly, after having leeches the belly, I ordered a large blister to be applied so as to cover the epigastrium and lower part of the chest anteriorly. The only thing remarkable in her case, and to which I should have called your attention more particularly, was the repeated occurrence of rigors. It appeared from the account given by the nurse, that she had frequent attacks of shivering on last Friday and the two preceding days ; and where this occurs, you should always suspect the existence of some local inflammation.

Such were the principal phenomena observed in this case. On Saturday, she stated that she felt better after the application of leeches, and had no pain or tenderness whatever in the belly ; but still it was observed that the tym-

panitis was undiminished, and that she was not by any means improving. This morning she called to the nurse to assist her in getting to the night-chair, when, after a few minutes, she was suddenly seized with a violent convulsive fit, and expired.

I may observe, that there was nothing in this case which would lead one to suspect the existence of cerebral inflammation. The fever was of the ordinary kind; there was no remarkable acceleration of pulse (the number of beats in the minute being only eighty-four when we examined her on Saturday); she had some headache, but this did not continue; and there was no flushing of the face, redness or suffusion of the eyes, heat of scalp, or throbbing of the temporal arteries. There was nothing to inform us that disease was going on in the brain, and yet the patient dies violently convulsed. Under these circumstances, how are we to explain the manner of her death?

On opening the body, no trace of disease could be found in the brain. The thoracic viscera were also healthy, with the exception of some vascularity and congestion of the bronchial mucous membrane. In the abdomen there were ample marks of extensive inflammation. The cavity of the peritoneum contained a quantity of serous fluid; the intestines were glued together by lymph at almost every point of contact; and the serous membrane was highly vascular. The mucous membrane of the intestines was extensively inflamed, and there were numerous small ulcers in the situation of the glands of Peyer. The uterus, with its appendages, was in a state of intense inflammation, and presented marks of recent delivery. It appeared afterwards that she had been delivered of a male infant, the fruit of an illicit intercourse, a few days before her admission into the hospital. Under the influence of shame, and a desire to conceal her condition, she had, throughout her illness, persisted in strongly denying the existence of any abdominal symptoms whatever.

Here this question,—whether the disease might have been cured had its true nature been discovered on her admission,—naturally suggested itself. I must candidly confess that I think it might; and I regret extremely that the peculiar circumstances of the case rendered her anxious to conceal the existence of the symptoms of abdominal inflammation; for had it been otherwise, a more active antiphlogistic and mercurial treatment might, perhaps, have been successfully employed.

This case affords an example of the effects which irritations of the periphery are capable of producing on the central portions of the nervous system; for here death was induced by convulsions, the immediate cause of which was situated not in the brain but in the abdomen. A very remarkable and striking case of a somewhat similar nature has been lately published by Dr. Ebermaier, in *Rust's Magazine* (Vol. 42, Part I., p. 52, et seq.), in which the abdominal irritation, caused by an enormous collection of lumbrici in the small intestines, occasioned in a child, who had previously enjoyed good health, a sudden attack of pain in the belly and vomiting, terminating speedily in fatal convulsions. The intestines were not inflamed, but were completely obstructed in many parts of the ileum, by successive round masses, formed by agglomerations of lumbrici, rolled up together, and enveloped in an adhesive paste formed of half-digested bread, cemented by a tenacious mucus. The worms were too numerous to count, amounting to many hundreds.

I shall next, gentlemen, proceed to speak of ulceration of the stomach, and first of that form of it where the ulceration is caused by abscesses from with-

out making their way into that viscus. In the first case which I purpose bringing before you, the ulceration was caused by a hepatic abscess opening by three perforations into the stomach; it also burst into the pericardium. The case contains many particulars of extreme interest, among which I wish to direct your attention more especially to the physical phenomena produced by the simultaneous presence of air and fluid in the pericardial sac, no instance having been hitherto recorded where similar symptoms, arising from ulceration, extended to that sac, have been observed.

In order not to lengthen the case too much, I shall omit the details of treatment; they consisted of local depletion in the first instance by means of leeches, and an attempt to mercurialize the system, which attempt failed, because suppuration was in all probability established before it was made. My experience confirms the assertion made by Annesley and other writers on diseases of tropical climates, that it is impossible, or at least very difficult, to make the mouth sore to salivation, once the formation of abscess in the liver commences. Of course no practitioner, who is aware that hepatic suppuration has actually set in, will continue the exhibition of mercury; it then becomes injurious. In the following case, when suppuration was ascertained, poultices were applied, and various astringents were subsequently employed in vain, to check the diarrhoea.

Anne Walker, aged 25, spinster, of spare habit and nervous temperament, on Thursday night, 13th instant, without any assignable cause, was seized with a sudden and violent pain in every part of the abdomen, extending to the loins and back, unpreceded and unaccompanied by any other complaint. Was immediately bled, but without much relief; continuing in the same state, venesection was repeated the next morning with more effect; hot stupes were also applied. The entire of the 14th (yesterday) she remained in excruciating agony, applying the stupes, and obtained but little ease. She now lies on the back, with the legs drawn up towards the body, unable to turn to either side, or stir in the least in the bed, without an insupportable increase in her complaints. The pain she describes as of a lancinating nature, sometimes resembling the pricking of a number of pins, commencing at the epigastrium, shooting downwards to the pubis, and extending laterally into each hypochondriac and lumbar region.

Since the commencement of the attack she has been deprived of sleep, much annoyed with constant thirst, and a nauseous, disagreeable taste in the mouth. Her countenance is now anxious and distressed; skin moist, and covered with slight perspiration; tongue white and moist; pulse 128, small and somewhat wiry; respiration 54; no morbid phenomenon can be detected in the chest; heart's action rapid, and sounds natural; the abdomen is tense, hard, and exquisitely painful, the slightest degree of pressure causing much uneasiness; bowels free; urine passed in regular quantities.

17th.—The greater part of the night was in a profuse perspiration; the pains in the abdomen generally not so acute; they are, however, still aggravated by change of position; the mouth has become tender, and gums spongy; pulse 104, tolerably full, and easily compressed; respiration 40; tongue coated, and moist.

18th.—Since the poultices were applied, the pains have been so far lessened, that she can extend her legs without their being increased; her countenance is not so distressed, and she appears more at ease; is at present in a profuse sweat; pressure on the abdomen still occasions uneasiness. In the right hypochondrium and epigastrium there is a considerable tumefaction,

somewhat of a conical shape, affording, when pressed, a degree of elasticity and *dulness on percussion*; the pain produced in this part by pressure is very acute, whilst elsewhere it is comparatively slight.

19th.—The only part of the abdomen pained by pressure is that where the tumefaction was observed yesterday; it extends from below the ensiform cartilage to within a couple of inches of the umbilicus, also laterally occupying a space between three and four inches; and to-day a sensation of fluctuation is communicated to the touch.

20th.—A violent purging commenced yesterday, and continued the entire night; stools numerous, eight or ten, liquid, and of a dark colour, each being attended with griping and kneading; was much troubled with shiverings and pains in the back; her breathing is more distressed and accelerated, 44 in the minute; pulse 132, small and hard; tongue moist. No change has taken place in the appearances of the abdomen.

24th.—There has been no return of the purging since the 21st; the perspirations are diminished, and her general aspect is improved; she complains principally of pains in the back, continued and shooting upwards along the entire of the spinal column. When the tumour is now percussed, *it emits a tympanitic resonance*; the lower part of the left side also is very clear on percussion; *cannot now detect the fluctuation observable on the 19th*; the elasticity remains as before; pulse 116, soft, and improved in strength; respiration 30.

26th.—Was troubled with hiccough the entire night; had but little sleep, and sweated profusely; is quite free from pain, except in back and loins; has no appetite, but great desire for drinks; the tumour appears flatter, is free from tenderness, and still tympanitic when percussed; pulse 128, small, and soft; respiration 32; breathing regular. Tube of stomach pump to be passed into the œsophagus.

28th.—No air escaped after the tube was introduced; no change has taken place either in the size or sound of the tumour; bowels freed three times since yesterday, and stools attended with griping.

29th.—The tumour in epigastrium is considerably diminished in size, percussion elicits, as before, a tympanitic resonance, but does not extend as on the previous days to the right hypochondrium; her countenance is improved, and spirits not so depressed; breathing continues quick, and pulse rapid.

October 1st.—Purging has returned, with griping pains in the abdomen, and numerous liquid stools; the tumour in abdomen is scarcely perceptible, and but a slight degree of clearness on percussion can be elicited; the upper part of the tongue is extremely painful; on the dorsum there are two or three sores, the largest about the size of a silver penny; the others resemble fissures, and are separated from each other by septa; pulse 116, soft, and tolerably full; respiration 32.

2nd.—Purging remains unchecked; the tumour in abdomen has altogether disappeared; no tympanitic resonance is now afforded by percussion; the sides of the tongue this morning are covered with aphthæ; the sores on the dorsum remain the same.

3rd.—No effect has been produced on the purging; was upwards of six times to stool since yesterday; is much reduced in strength; countenance pale; pulse quick, 112; has great thirst; tongue dry, and not so sore.

6th.—Heart's sounds natural. Percussion and respiration over both lungs as in the healthy state; abdomen sunken and free from pain.

7th.—Bowels have been opened seven times within the last twelve hours; pulse 120; respiration 30.

9th.—*Was attacked yesterday with acute pain in the cardiac region, and last night had a violent beating of the heart, also a burning heat below the left breast.* She cannot recollect any cause to which she might attribute this. Her present state is extreme emaciation and debility, cheeks hollow, eyes sunken, countenance dejected, and spirits languid; her breathing remains accelerated, short, and distressed; the jugular veins, in the recumbent posture, turgid, but without pulsation; likewise those along the trachea.

Percussion over chest generally is clear, except at the inferior and middle portions of the left side. Respiration in these parts is feeble, elsewhere pure and loud; impulse of the heart perceptible, but feeble. About half-an-inch distant from the lower edge of the mamma both sounds are confused, and a slight bruit de soufflet is audible; advancing to the right, it increases in roughness, and below the mamma it becomes a complete creaking noise, accompanying both sounds of the heart, and is still louder between the sternum and breast; when pressure is applied it gradually increases these phenomena, and when considerable pressure is used, they are changed into a loud frottement, obscuring both sounds, the first especially; they are also rendered more distinct by holding the breath.

Abdomen smaller; purging stopped; pulse 130, small and compressible.

10th.—The phenomena are now audible as far as the middle of the sternum, over the cardiac region and laterally, being in each place of the same character. The sound is between bruit de soufflet and bruit de scie, in a great measure masking the first sound and accompanying the second, which still retains its clearness. Immediately under the mamma, together with these sounds, but heard only occasionally, is a *peculiar metallic click*, affording the idea of some fluid dropping in or about the pericardium; it is removed when pressure is made over the heart, whilst the other noises undergo a thorough change; thirst urgent.

11th.—Has not had a return of the pains in the left side; sweats every night as much as hitherto: had several shiverings last night, after each of which she fell into a copious perspiration. Pulse 136, feeble; respiration 40; bowels regular.

Impulse of the heart is feebler; when the hand is placed over it, a rubbing sensation is communicated.

The sound to-day has assumed the character of an emphysematous crackling, is very fine, and obscures both sounds of the heart; is more distinct along the middle and inferior parts of the sternum, and can also be heard to the left of the mamma. The metallic click, or apparently the dropping of fluid, observed yesterday, is more audible and distinct, but irregular in frequency.

12th.—The irregular click, audible yesterday only at intervals, has now become a *loud metallic ticking*, audible to each stroke of the heart over those parts where the emphysematous crackling and other sounds were to be heard; it obscures all the phenomena hitherto noted, except a slight bruit de soufflet about the nipple of the left mamma. Impulse cannot be felt; is sinking fast.

13th.—Died last night at 10 o'clock.

Autopsy Twelve Hours after Death.—Percussion over the front of chest afforded no evident dullness; over the cardiac region it was clear. When the sternum was raised, both lungs were found collapsed; the left in particular, which was found compressed by a quart of sero-purulent fluid. Weak adhesions connected both lungs with the external pericardium, and their inferior lobes with the upper surface of the diaphragm. The pericardium appeared enlarged, and a small quantity of fluid could be felt in it.

The abdominal parietes having been removed, the cavity of a large abscess was exposed, situated in the left lobe of the liver. Its form was circular, about eight inches in circumference, and bounded anteriorly by a portion of the parietes of the abdomen, and ensiform cartilage. Its posterior wall was formed by the remaining solid part of the left lobe; whilst the diaphragm superiorly was in immediate connexion with it, and the falciform ligament served as a means of separation between it and the right lobe; its thin edge was over-lapped by a portion of the stomach; and near the pyloric orifice was an ulcerated circular hole, with rounded and smooth edges, about three-quarters of an inch in diameter, communicating directly with the abscess.

The stomach was intimately connected with the sub-surface of the left lobe by its concave margin; and near to its cardiac extremity were two other openings, one somewhat oval in shape, about half an inch in diameter, and connected with the abscess by means of a canal capable of admitting the tip of the little finger, and separated from the other by a thick band, evidently a portion of the stomach. This last perforation, or the one nearest the œsophageal extremity of the stomach, had no communication with the abscess. The surface of the abscess was irregular, presenting many depressions and elevations; its colour of a yellowish grey, its substance creamy, soft, and reduced by pressure into a pus-like fluid; when cut into it was at least three-quarters of an inch in depth, but does not retain the same thickness in every part; beneath, the structure of the liver is visible, and in firm connexion with it the stratum of diseased substance, neither can it be separated from it.

Where the diaphragm and pericardium are united, *is a perforation sufficiently large to admit the middle or ring finger, and opening directly from the abscess into the pericardium*; the edges are ulcerated and uneven; and within the covering of the heart are about two ounces of yellow-coloured fluid, mixed with flakes of lymph. The pericardial sac is increased to four times its natural thickness, but appears equally dense in all parts; its external surface is highly vascular; its interior is likewise inflamed, dotted with numerous red spots, in some parts about the size of a pin's head, and in others forming an arborescent appearance; the surface has, in a great measure, lost its natural glistening appearance, and looks uneven, being coated in parts with small portions of organized lymph; and generally, particularly towards the origins of the great vessels, with small, granular, semi-transparent bodies, resembling millet seeds, or the eruption sometimes seen in cases of rheumatic fever; its feel is quite gritty, but when these bodies are scraped off, the serous lining of the pericardium is apparent underneath.

The heart itself is of a light red colour, and its investing membrane is covered, like the pericardiac sac, with those glandular substances, more abundant about the auricles and base of the heart. Both auricles are bound down to the substance of the heart, by means of strong, tough, and organized pieces of lymph.

Some tubercles scattered through the superior lobe of each lung. No adhesions existed between the peritoneum and intestines, or between these latter.

Concerning this case the following remarks appear necessary:—

First; when the abscess burst into the stomach, the epigastric tumour which the abscess formed, did not at once subside, but suddenly, from having yielded a dull sound on percussion, became tympanitic and clear; air from the stomach having found its way into the cavity, while the pus escaped.

Secondly; the now tympanitic tumour seemed so exactly to resemble the

stomach distended with air, that we were induced to pass a tube into the stomach, but it did not give vent to any air.

Thirdly ; in a few days the air also passed from the cavity of the sac, then all traces of the tumour entirely and unaccountably disappeared.

Fourthly ; the diarrhoea was caused by the perpetual flow of fetid and irritating matter from the abscess into the intestinal cavity.

Fifthly ; no peculiar symptom, pain, or derangement of its functions, denoted the extensive ulceration of the stomach.

I shall again revert to this subject, when I have laid before you the details of two other cases of ulceration of the stomach.

Sixthly ; the inflammation spread by continuity of structure, from the abscess, to the pleura and pericardium *in the first instance*.

Seventhly ; soon after the pericarditis thus formed had commenced, and at the time that its usual physical phenomena were clearly perceived, a new set of physical phenomena arose, *dating from the moment the pericardium was perforated, and air entered its sac*.

Eighthly ; although most intense general peritonitis existed when the patient was admitted, yet no traces of general peritoneal inflammation were discovered on dissection.

Ninthly ; it may be asked, why I had not recourse to an operation to let out the matter, as soon as fluctuation had become plainly perceptible in the hepatic tumour ? My answer is, that the tumour formed so quickly, and seemed to tend to the surface so rapidly, that I thought it better to wait for a day or two, in order to render the operation safer, never anticipating that the matter could, in so short a time, find an exit by another channel.

The next case is one in which an abdominal abscess opened externally, and communicated also with the stomach.

Catherine Delany, aged 56, a washerwoman, was admitted into the Meath Hospital, on the 5th of May ; she had a very large abdominal tumour, which made its appearance about two years previously, and was first perceived in the left hypochondriac region. It slowly, but gradually, increased in size, and did not appear to affect her health, for she was able to work until a few days before her admission. The tumour was globular, felt uneven and rather solid, and was well defined in its outline ; occupying the whole of the umbilical, extending upwards into the inferior portion of the epigastric, and downwards into the superior portion of the pubic region. Laterally it stretched considerably into the right and left lumbar regions. It was quite moveable, and always fell towards the side on which she lay. It had lately, *and but lately*, become painful and tender, particularly about the navel.

The length of time the tumour had been growing, its shape, and the absence of all constitutional affection, or local pain, during so long a period, induced me to consider it as ovarian. Shortly after her admission, matters began to wear a more threatening aspect ; the tenderness and pain felt in the tumour increased daily, and she now was troubled with frequent returns of nausea, which, in the course of a fortnight, was succeeded by obstinate vomiting.

The tumour began to grow red and softer in the umbilical region, where a deep-seated fluctuation was recognizable, which soon became quite evident and superficial, accompanied by heat and deep redness of the integuments, and a surrounding hard margin. In fact, everything announced a collection of matter rapidly making its way to the surface. In consultation, it was determined not to open this, for several reasons, the principal of which was, that the long continuance of the local disease seemed to preclude all hopes of ulti-

mate recovery ; in the mean time the pain, emaciation, and suffering of the poor patient increased, and while the central softening of the tumour rapidly progressed, its circumscribed and solid structure towards the circumference as rapidly subsided, so that although the bulk of the whole was probably the same, its shape and prominent appearance were much altered.

The vomiting became more distressing, nothing was retained in the stomach, large quantities of fluid, deeply tinged with bile, were thrown up for a week or ten days ; about the 8th or 9th of June, the fluid ejected suddenly changed its character, being now a thick, viscid, and glairy mucus. On the 13th the tumour burst, and continued to discharge daily nearly a gallon of fluid exactly similar to what she had lately vomited. The external opening evidently communicated with the stomach, for the moment any fluid was swallowed, a portion of it was forced out through the former. On one occasion a piece of orange, which she had chewed and swallowed, blocked up the external orifice for several hours. It is well worthy of notice, that notwithstanding the deplorable ravages committed on her organs of digestion, and notwithstanding the existence of a perforation of her stomach, the tongue continued, throughout the whole of her illness, clean and moist ! Again, when the perforation had taken place, the vomiting ceased, and although her most urgent sensation was that of thirst, yet she had a tolerably good appetite, which she sought continually to gratify by swallowing jelly, &c. !

She lived four days after the tumour burst externally, and but nine days after the occurrence of the perforation of the stomach. The external orifice communicated with a very large sac, the seat of the abscess, and formerly, in all probability, the sac of the tumour before it began to suppurate. This sac extended over the whole space formerly described as occupied by the tumour, and contained a considerable quantity of thick gruel-like fluid. No solid matter whatsoever was found within the limits of the tumour ; nothing remained but the sac, thickened by inflammation, and adhering by pseudomembranes to all the neighbouring viscera. The intestines and great omentum, matted together, formed the posterior wall of the sac, but on account of the diseased state of the parts it was impossible to determine with certainty, whether the anterior wall was formed by the peritoneum lining the abdominal muscles, or by the sheath of the recti. The former supposition seems the most probable, for a large portion of the surface of the liver was within the cavity of the abscess, and at its inferior edge, was destroyed by ulceration.

The opening into the stomach was in its greatest curvature, and was distant from the pylorus about an inch and a half, and with the loss of substance in the liver, was the result of simple ulceration, without preceding scirrhus. All the intestines and viscera behind the tumour were, without exception, free from disease. I cannot conjecture in what structure this disease originated, or what was its nature at the commencement, but it may be doubted whether an operation for letting out the matter might not have prolonged, if not saved the patient's life, had it been undertaken at the time fluctuation first became perceptible, and before the ulceration of the stomach and liver had commenced. The details I have given you may possibly serve as a guide to others, should another such case occur.

The last case to which I mean to call your attention is one of chronic inflammation and ulceration of the mucous membrane of the stomach.

I was requested by my friend Doctor Henry, to meet him in consultation on the case of a gentleman residing in Gardiner-street. Our patient was

about fifty years of age, and had previously enjoyed good health. We could not ascertain the cause which had given rise to the disease, which lasted about two months, terminating fatally. The symptoms underwent very little variation, and were accompanied by an extreme pallor of the skin. He had, indeed, very much the wax-like aspect of a person exhausted by repeated hemorrhage. He sank very gradually, having fallen into a state of extreme emaciation.

Some of the principal symptoms are described in the following notes taken by Doctor Henry, and which I shall read for you :—"I find that I have not much to add to what you already know of the case in Gardiner-street. You saw, yourself, the progressive emaciation and debility; the total loss of appetite; the insatiable thirst; a thirst greater and more insatiable than I ever before witnessed, lasting as it did, during the whole course of my attendance. The eagerness with which the patient looked at any drink which was pouring out for him, and the impatience with which he seized the vessel and swallowed its contents at one draught, were the first circumstances which determined my diagnosis of an inflammatory process going on in the stomach.

"In this case there was, *besides, a total absence of pain on taking food or drink, or from pressure on the region of the stomach, also an absence of vomiting*, except when it happened that the patient had taken a large quantity of warm liquid. He was then (and only then) sure to vomit; but he never threw up any of the solid food which he used to take in small quantities from time to time.

"The patient occasionally hawked up a spit in which there was contained a small globule of rose-coloured blood of the size of a pea; this globule of blood was entangled in the mucus, but without discolouring or streaking it.

"The patient died from inanition.

"All the internal organs were healthy except the stomach. The interior of the stomach presented a dark surface when opened. The portion surrounding the cardia, and the greater part of the large extremity, were almost quite black but without any appearance of large veins. The blackness was uniform, and seemed as if the substance of the lining membrane was deeply and permanently dyed with Indian ink. Around this black part was a circle of florid-red, gradually merging in the parts beyond, which were of the dark colour of ordinary melæna, with large black veins. Near the pylorus were two or three florid-red patches, evidently of superficial ulceration, with a defined hard-red border. They were of the size of a shilling or split bean. The pylorus itself was healthy. The patient derived most relief from repeated small draughts of iced water. No medicine was of the least service. It seems strange that in this state of the stomach sulphate of iron did not disagree."

In addition to these symptoms, it should be observed, that the patient's tongue was constantly parched. He slept, however, remarkably well during the greater portion of his illness, and the evacuations from the bowels were throughout *perfectly natural*. His belly did not exhibit at any time the least tumefaction, or the epigastrium any tympanitic distention; his pulse was in general about 94, and was not hard or wiry. Failure of strength and loss of flesh were amongst the earliest symptoms, and progressed steadily in a ratio beyond all proportion greater than could be expected, considering the quantity of nutriment taken and the well digested appearance of the fæces. The urine was quite natural, except in the beginning, when it was for a time tinged with blood.

In comparing the three preceding cases together, you cannot have failed to

remark how few were the symptoms denoting any injury of the stomach in the two first, where the ulceration of that organ was, nevertheless, most complete and extensive ; it would seem, indeed, as if the perforations, resulting from matter making its way through that organ, were accompanied by much less derangement of its functions, than a far less widely extended inflammation originating in the stomach itself spontaneously. The perforating process, intended to accomplish the evacuation of an abscess, must therefore be regarded as a curative effort of nature, wisely and beautifully so contrived that the steps necessary to insure the escape of the pus may be accomplished without endangering life or compromising the health of the stomach. If this be so, and it is scarcely possible to doubt it, we are presented with an additional example of the futility of *a priori* reasoning, for surely no one who examined the extensive perforations in the stomach of the two first cases would have hesitated to pronounce that lesions of tissue so profound and extensive must have produced a corresponding injury of function.

In the third case it is well worthy of notice that many of the symptoms reputed to be of most constant occurrence in gastritis, were absent. There was *no tenderness, no vomiting, no pain on taking food, and no epigastric distention*. Neither did this long-continued and at length fatal gastritis ever give rise to the least mental aberration, or disturb the soundness of sleep. How many reasonings and explanations of the *gastric* origin of typhus fall to the ground before such a case !

A word or two before I conclude on the administration of opium in enteritis. I have already spoken of the salutary effects of this drug in certain stages of fever, and I would refer you to the remarks I then made as to the circumstances which indicate its employment. The following remarkable case of violent enteric inflammation, attended, as such cases always are when exceedingly intense, with cholera-like collapse in the very onset of the disease, was saved by means of thirteen or fourteen grains of opium, given in the course of twenty-four hours, a plan of treatment which I first proposed, and which has since been very generally adopted.

I attended the case with Dr. Nolan, whose servant the man was, and I shall read for you his notes :

"On Monday evening, 27th February last, my servant Horan casually complained of pains in the bowels ; they had not been freed on that day, and supposing it an instance of mere indigestion, I ordered him five grains of calomel, and a draught of castor oil. For that night I heard no more of him, but early on the following morning I was hastily summoned by one of his fellow-servants, who reported that he was dying. I found him labouring under severe but intermitting pain of the belly, particularly about the umbilicus, *violent and frequent cramps*, especially in the lower extremities, and occasional vomiting. The surface was perfectly cold ; features sunken ; eyes surrounded by a dark areola : voice subdued to a whisper ; pulse 140, small and feeble ; abdomen tender, though not at all tumid. He told me he passed the night in great torture, and that the bowels were still unmoved. I immediately ordered ten grains of calomel, to be followed in two hours by an oil and turpentine draught, a turpentine enema, bathing, &c.

Three hours subsequently :—temperature restored ; cramps less violent ; vomiting less frequent ; but bowels obstinate ; face and pulse equally unpromising as before ; abdominal pain increased. I now bled him ; but scarcely had four ounces been taken, when I was very glad to tie up the arm ; the prostration alarmed me. Something, at all events, ought to be done, and

I ordered a sinapism to the abdomen, a repetition of the enema (for I confess I had not much confidence in frequent or powerful purgatives), and a powder, composed of calomel two grains, opium a quarter of a grain, to be taken every fifteen minutes. Towards evening I thought my patient rallied a little; his countenance was better; pulse firmer; his abdominal pain not increased, and he vomited but once; the injection brought away with it a little mucus, but no more. I ordered the turpentine draught and the enema to be repeated.

"During the night there was just a trace of feculent matter, but vomiting returned, and I found him in the morning (the second of his illness) suffering an increase of pain; the abdomen, too, was not only extremely tender, but *decidedly swollen*; the pulse remained quick and weak as ever. I could not discover that he passed water. I bled him again, to as great an extent as I could, which was about eight ounces, and the cadaverous look, the cold clammy surface, in short, the absolute collapse which succeeded, and *continued for hours*, gave me strong reason to regret it. *It produced no impression* upon the pain.

"I had read with great interest the invaluable observations of yourself and Dr. Stokes, as well as the publications of Armstrong, Griffin, Gooch, &c., wherein the applicability of opium to certain modifications of abdominal inflammation is forcibly demonstrated, and I thought my patient precisely in the condition in which you would probably have had recourse to that powerful agent. I therefore commenced exhibiting half a grain of opium and two of calomel every half hour. After the second hour, I substituted for the calomel three grains of carbonate of ammonia, which with the opium as before I continued during the day and the whole night. In the morning (the third), I had the satisfaction of ascertaining that the pain and swelling had considerably subsided, and that the *bowels had been twice opened*; his countenance now spoke promisingly, and the pulse began to fall. I, however, persevered in my plan of treatment for the day, and, indeed, for the following nights and days (gradually increasing the interval between each dose, however), until all trace of pain and obstruction had disappeared. The bowels continued to act from time to time, although I never ventured upon another purgative; the dejections were at first largely mixed with blood and mucus, but soon assumed every character of health. Of the sequel (may be the consequence) of this interesting case, you most kindly undertook the management, and I shall therefore add nothing to this simple statement of *facts*."

The first case in which I used opium in the treatment of peritonitis occurred in the old Meath Hospital in the year 1822; it was that of a woman in whom the inflammation set in after the operation of tapping for dropsy. The case seemed so hopeless, and the agony which the patient was suffering so intense, that I was induced to order opium for her in very large doses; she also got wine: to my great astonishment she recovered. I afterwards published, with Dr. Stokes, our conjoined experience of the efficacy of this plan of treatment, in the fifth volume of the Dublin Hospital Reports, to which I must refer you for fuller details. Suffice it to say, that the use of opium in the form of peritonitis there described is now almost universally adopted.

One of the young gentlemen attending here has asked me how I would treat an acute attack of piles. I will communicate whatever information I possess on the subject, and am always happy in answering any inquiries connected with your professional pursuits. Of course I cannot enter into a regular disquisition on the subject; this you will find in books, particularly

those published on the continent, which follow up the consideration of hemorrhoids to an enormous extent. Our books here do not give much information on the constitutional symptoms which are attendant on this affection; but in France, Germany, and Italy a great part of their study is spent in investigating what constitutional diseases are connected with or arise from piles. I shall pass over this, as well as the pathology of the disease, and the manner in which the rectum is affected; neither shall I dwell on their divisions into those which are close to the anus and those high up in the rectum, &c., as you find them in various surgical works, and in *Cooper's Dictionary*, and shall only remark, that the article on piles, in the last-mentioned work, is unworthy of the author.

I will proceed to the treatment of an acute attack at once. Suppose you are called to a patient labouring under an attack of piles, who is suffering very great pain, and, indeed, you cannot conceive how violent this may be; he is unable to remain quiet for a single moment; finds it almost impossible to sit down for any time; is perfectly sleepless, and screams with agony if you examine the state of the anus. The expulsion of the feces causes exquisite torture; you find him exceedingly miserable, and imploring your assistance. On your treatment of such a case much of your credit will depend; and yet I must say that I have seen persons of great professional character fail in procuring prompt relief.

Here the tumours are very much inflamed, the mucous membrane highly vascular, and the spasm of the sphincter great: omitting all surgical considerations, what are you to do? Apply a sufficient number of leeches in the first place. This will give relief; but do not rest satisfied with leeches alone. You will often have occasion to observe that their application has been attended with very little diminution of pain. If you do not see them followed by immediate benefit, make your patient sit over the steam of hot water, poured into a close-stool, for twenty minutes or half an hour, and make him repeat this five or six times a day. As soon as he rises from the close-stool, and before he lies down, apply a warm bread and milk poultice to the anus. You cannot conceive how rapidly and effectually this constant stuping and poulticing will relieve an acute attack. You should, in the mean time, give such medicines as will open the bowels, procure fluid stools, and diminish the engorgement of the rectum. That which I prescribe is the following electuary:—

R. Electuarii Sennæ,
 Florum Sulphuris, ʒʒ, ʒj.
 Pulveris Jalapæ, ʒj.
 Cupaibæ, ʒss.
 Pulveris Zingiberis, ʒss.
 Bitartratis Potassæ, ʒss.
 Syrupi Zingiberis, quantum sufficit ut fiat electuarium.

Of this a teaspoonful is to be taken night and morning: sulphur heats and determines to the skin; bitartrate of potash produces large watery discharges, and tempers the heat of the sulphur; jalap quickens the purgative action, and copaiba exercises a powerful influence on the mucous surface of the intestines. We have an opportunity at present of watching the effect of the latter remedy in the case of a man to whom we are giving sulphur and copaiba, in disease of the mucous membrane of the lungs. This electuary opens the bowels, relieves the congestion of the mucous membrane, and determines to the skin and kidneys.

With the aid of this, leeching, warm stupes, and poultices, you will quickly relieve an acute attack of piles ; and you may then have recourse to an astringent lotion, we will say one composed of liquor plumbi subacetatus dilutus, six ounces, spirit of rosemary and tincture of opium, of each an ounce. This is to be applied five or six times a day, and has a very good effect in removing the relaxed state of the rectum. I have seen cases treated in this way with marked success by Dr. Brereton, to whom I am indebted for this efficient treatment. I always endeavour to collect as much information as possible, and shall always feel happy in acknowledging the source whence it is derived. I trust I have now answered the question put to me by one of the pupils to his satisfaction, and I hope the observations I have made will be found available in practice.

LECTURE LIII.

TAPE WORM.—DISEASES OF THE LIVER.

THERE are two sorts of tape worm which inhabit the human intestines ; they differ remarkably in their appearance and anatomical characters, although bearing a general resemblance to each other. They are both made up of a number of flat pieces singularly articulated together ; but in one—the *Tœnia solium*, the pieces or joints are comparatively long and narrow, with the oviduct opening on their margins ; while in the other—the *Tœnia lata*, the joints are short and broad, with the oviducts opening in the centre of their flat surface. Now, these two varieties of tape worm differ also in their geographical distribution ; the *tœnia solium* is met with in England, France, Italy, Germany, and other countries in the south of Europe ; while the *tœnia lata* takes up its abode in the intestines of the inhabitants of Russia, Poland, Sweden, and the northern countries of Europe ; and either worm is very rarely met with out of its own district.

I have lately, however, had an opportunity of seeing the broad tape worm in three individuals residing in one house in Hume-street, though not all members of the same family, as two of the cases were children of the owner of the house, and the third was in a maid servant. It is this singular fact which induces me to mention the cases to you ; the occurrence of this variety of tape worm, so rare in this country, in members of the *same* family, might be accounted for on the principle of supposed identity of constitution, but it is difficult to account for its presence in the servant as well as in the children.

Oil of turpentine appears to be the best remedy for expelling tape worms ; it is usually given in large doses for this purpose, but I have sometimes found that it fails when thus given, while the continued use of it in small doses succeeds in expelling the parasite. Thus, in the case of the late Mr. Williams, the apothecary in Charlemont-street, ten drops given three times a day, and continued without intermission for six weeks, expelled a long tape worm which had resisted the same remedy in large doses.

The electuary of tin too is in some persons an unfailing remedy. In a case which I saw with Sir Philip Crampton and Mr. Pakenham, this remedy proved very efficacious. The following is the form in which it was prescribed :—

R Pulveris Stanni, ʒij ;
Theriace, quantum sufficit ut fiat electuarium, cujus
sumat quartam partem mane et vesperi quotidie.

This quantity was ordered to be taken daily for a week, and at the end of the week an oil of turpentine draught. He first took the medicine in March last, again in July, and lastly in October ; on each of these occasions he passed several feet of tape worm on the second or third day, and none afterwards. This gentleman had previously taken the decoction of pomegranate root and the compound decoction of aloes without any effect.

I shall next proceed to speak of some affections of the liver ; and first let me call your attention to a case of inflammation of that organ terminating in abscess, and to the mode, which I was the first to point out, of opening abscesses of the liver. A robust man, by trade a glass-blower, was admitted into the Meath Hospital ; he laboured under well marked symptoms of acute inflammation of the liver. Although very active means were used, complete resolution of the inflammation was not induced, and four weeks after the subsidence of the first attack, the symptoms left no room to doubt the formation of an abscess in the liver. Hectic fever, attended with rigors, night sweats, and emaciation, being accompanied by a constant sense of uneasiness and weight in the right hypochondrium, which was evidently enlarged and harder than natural. It was also tender and painful at first, but after some time the pain became confined almost to one spot, which nearly corresponded with the centre of the external elevation.

Poultices were diligently applied, but although a very indistinct feeling of deep seated softness was soon perceptible to the touch, yet the abscess showed no tendency to point outwards. The external swelling remained stationary, and the integuments were of a natural colour. The man's constitution was now rapidly giving way, and it therefore became a most important question whether the abscess in the liver should be opened by an operation. To the performance of an operation it was objected, that the external tumour was very diffused, and, of course, the situation of the abscess quite uncertain, so that an operation afforded but little chance of giving exit to the matter, and if it failed, it might, for obvious reasons, prove very detrimental ; any attempt therefore to open the abscess was disapproved of by the surgeons of the hospital.

Under these embarrassing circumstances it occurred to me that I had seen several cases where an incision made over a deep-seated abscess had failed from its deep situation to give vent to the matter in the first instance, and yet in the course of a few days the abscess found its way to the incision and burst through it, a process explicable partly by the removal of pressure, and partly by the inflammation arising from the incision, and which served to form a connexion between it and the abscess.

On these grounds I proposed that an incision about four inches long should be made exactly over the centre of the tumor in the right hypochondrium, that it should be carried through a considerable depth of muscles, and if possible be continued to within about one or two lines of the peritoneum.

This incision was to be plugged at its bottom with lint, and thus kept open, in the hopes that the hepatic abscess might for the reasons above mentioned tend towards, and finally burst through it. The operation was performed by my colleague, Mr. MacNamara. The abdominal muscles were found of considerable thickness and quite healthy, and although the incision was very deep, yet the situation of the hepatic abscess was not felt more distinctly, so that it now became quite evident that no prudent surgeon would have persevered in an attempt to open directly into it.

I now waited for the result with much anxiety. In two days after, the patient sneezed, and purulent matter in very large quantity burst forth through the wound. On examination it appeared that the incision had not been exactly over the abscess in the liver, for the matter did not come from the bottom, but from one side of the wound, and pressure on the liver to that side caused matter to flow in abundantly. The communication between

the wound and the abscess was not therefore directly inwards, but somewhat laterally. If then we had attempted to open the abscess *directly*, we should have failed, and the consequence of such an attempt might have been fatal. Purulent matter, at first in large and afterwards in diminished quantity flowed through the wound for several weeks, and the man perfectly *recovered*.

I have since used this mode of procedure in several cases, and it has been adopted by many others with much success. Its safety is a special recommendation, for it is in most cases very difficult to decide on the most appropriate spot for opening an abscess of the liver, and in some instances a distended gall-bladder has been opened by mistake, and caused death. Dr. Dick has employed in the East Indies a plan based on the same principles; instead of making an incision through the integuments, he destroys them by means of caustic, so as to ensure their sloughing, and he speaks most highly of the advantages he has derived in numerous cases from this mode of operating.

I will dwell no longer on this topic, but pass on to a very remarkable case at present in the hospital. If I were asked what was the most singular effect of medicines in the treatment of disease that ever came under my observation, I would say that it was in the case of a man you have seen in the upper ward, which has been noted by Mr. Costello, and forms a *tout ensemble* of disease which I have seldom seen paralleled. In the first place, he had dropsy, his legs were greatly swelled and anasarcaous—no, the first symptom was, that he is an old man, and that is a bad item in the catalogue of his ailments; in the next place, he had not only cedema of the extremities, but also ascites, and very great enlargement of the liver; this organ was protruded forward in a remarkable manner, and you could at once feel its induration and rounded edge forming a large tumour, stretching far into both hypochondria.

On inquiring into the state of the digestive functions, you found that his tongue was parched, of a dark brown colour, and thickly furred; that he suffered from excessive thirst, nausea, occasional vomiting, griping, and diarrhoea, accompanied by discharges which were any thing but healthy; that he had no appetite, that he was labouring under weakness, fever, ascites, anasarca, and, to complete this melancholy catalogue of maladies, old age; from such a combination of symptoms we looked upon his case as hopeless, and did nothing for two or three days, because it was one which required a careful consideration. We perceived that it was impossible to give him mercury, and besides that, the state of the liver did not indicate it. Now, what was the state of this man's liver? The nature of this swelling cannot at all times be easily distinguished from that which proceeds from hepatitis.

When hepatitis sets in with symptoms of jaundice and fever, you are aware of the nature of the disease, and you can cure it with mercury and bleeding. Again, you have a chronic enlargement of the liver, with pain at the top of the shoulder, and this you can remove by moderate antiphlogistic treatment, purgatives, and a cautious employment of mercury. But there is a change in the liver which is apparently like inflammation, and which is not hepatitis, but hypertrophy or morbid growth. You will, however, generally find that though in this case there is great enlargement, yet very little pain is felt, and you rarely find it accompanied by jaundice. I must confess, however, that I have seen a man in Sir Patrick Dun's hospital, in whom a hypertrophied liver was excessively painful, and I am aware also, that it

may be attended with jaundice. I endeavour to draw a distinction, but can only sketch it. They are, however, two diseases which require a very different treatment.

Cases of this disease resemble hepatitis, and cases of hepatitis put on the semblance of this affection, and it is only in extreme cases that you can draw a complete line of demarcation. The case before us is, however, a very good example of the treatment to be pursued, and this is the chief thing we have to consider. In those hypertrophied livers the substance of the organ is enlarged, without having any lymph thrown out, and you never find any abscesses. Mercury will not affect a liver of this kind.

In this instance, the principal remedial agent we employed was the hydriodate of potash. The first thing which suggested the use of this medicine in hypertrophied livers was the absorption which it was seen to produce in cases of goitre. We gave this man ten grains of the hydriodate of potash four times a day for a fortnight, and you have all witnessed the extraordinary improvement which took place in his symptoms. His pulse came down, his tongue became clean, the state of his bowels improved, and the dropsical swelling and enlargement of liver considerably subsided. If, therefore, you meet a case of enlarged liver in which you cannot clearly trace the symptoms to inflammation, and it presents analogies to the present one, you will employ the hydriodate of potash. We also used leeches to the anus. When diarrhoea appeared, different remedies were proposed by gentlemen here. I thought leeching the best practice, because it would at once diminish intestinal irritation and lessen the congestion of the liver. French practitioners have discovered that the diarrhoea of fever is safely and effectually stopped by applying a few leeches to the anus, and that this effect depends on removing the intestinal congestion. In the present instance leeching produced immediate relief.

In cases of chronic congestion of the alimentary canal and enlargement of the liver, I am in the habit of applying two leeches every second day to the verge of the anus, and I repeat this sometimes as often as fifteen times, and that with considerable benefit. Leeching to the amount of eight or ten leeches once or twice is very different from this repeated application of a small number; the former is adapted to acute inflammation—the latter to chronic. You will also find that conium or hyoscyamus, in combination with the hydriodate of potash, will contribute materially to the patient's relief. Conium is a remedy which is found to possess great efficacy in dissolving certain tumours. Baron Stoerk overrated its value, and thought it capable of curing cancer. This is not the case; but still, in addition to their narcotic effects, conium and hyoscyamus possess a remarkable discutient power. The following is the formula employed in this man's case:—

R. Aquæ fontis, f℥j.
Hydriodatis Potassæ, gr. x.
Tincturæ Hyoscyami, f℥ss.
Syrup̄i Zingiberis, f℥j.
Misce; fiat haustus quater in die sumendus.

Would you give opium in this case? Is there any difference between it and the narcotics we have used? I say there is, for beside impeding the action of the hydriodate of potash, it operates injuriously on those cases of hepatic disease. A few words respecting another remedy, that is to say, the use

of setons. I attended a lady with Dr. Ireland, who had seven distinct attacks of a liver complaint in the space of five months. She was jaundiced during each fit, and when the disease went away it left behind it an enlarged state of the liver, notwithstanding the repeated use of mercury. This was removed in some time by the use of a seton. I did not then know the medical virtues of the hydriodate of potash, or I might have cured the disease more rapidly.

Yesterday a gentleman called on me with a case sent for consultation from London. The patient, whose disease it describes, is now under the care of two eminent physicians, Dr. Elliotson and Dr. Johnson. His liver is greatly enlarged but not tender, and he is dropsical, although a young man. He has tried mercury in vain many months ago. Hydriodate of potash was ordered by his present attendants, and of course I concurred with them in opinion, having just witnessed its efficacy in the case before us. I also advised the insertion of two setons over the most swollen portions of the liver, having frequently seen hepatic engorgement and tumefaction, when become chronic, yield to the establishment of one, two, or even three setons.

In persons below thirty the liver may become enlarged to a very considerable extent, and yet return again to its natural size under proper treatment. I could point out several persons in Dublin, in whom the liver had been so much enlarged, that I thought their cases hopeless, and yet they have recovered, and are at present in the enjoyment of good health. The process by which the organ returns to its natural state and dimensions is generally slow; in two or three cases it occupied a space of time varying from one to two years. I attended a gentleman some time ago with Mr. Carmichael, and from the history of the case, as well as the symptoms present, we were induced to look upon it as incurable, and yet the patient has completely recovered. The late Mr. MacNamara and I attended a lady who had a very remarkable enlargement of the liver, but in the course of a year the viscus diminished so much in size, as to be very little above the normal dimensions. More recently Dr. Stokes and I have treated successfully an old gentleman between seventy and eighty years of age, who had an enormously enlarged liver and ascites. We agreed to try a combination of blue pill and hydriodate of potash. This he took for nearly six months, and its use was attended with a visible, almost daily, decrease in the size of the liver, and his general health gradually improved. He took the pills for a couple of months before his mouth got a little sore; but full salivation was not produced. He called on us a few weeks ago to thank us for our successful treatment, and took no small pleasure in directing attention to his altered appearance and renovated health. This is a matter of no common interest; for cases of this description have been generally looked upon as beyond the reach of medical aid. You should, therefore, be very careful in your prognosis of such cases, and not give them up at once as incurable.

I wish now to make a few observations on a case of jaundice in the small chronic ward. I do not intend to enter into any particular inquiry concerning the causes of this disease; you are aware that it may depend upon many causes, upon affections of the mind, gastro-duodenitis, inflammation or abscess of the liver, the presence of gall-stones, diseases of the head of the pancreas, aneurism of the hepatic artery, and, what is more remarkable, in some cases may arise without any assignable cause whatever. In the present instance it seems to have been the result of acute hepatitis. The man was attacked

with symptoms of inflammation of the liver, and about a fortnight afterwards became jaundiced. It is unnecessary for me to draw your attention to the history of the case, or the present state of the patient; all I can do at present is to make a few remarks on some points of treatment.

In the first place, the jaundice is, as you perceive, of an intense character: the man is as yellow as he could be. Now this I look upon as a favourable sign; the deeper the colour is in recent cases, the greater is the chance of effecting a cure. There are no cases so intractable as those in which the tinge of yellowness is so faint that you would be likely to overlook it, as in the case of a man in the chronic ward, in whom the colouring is so slight that it requires some attention to ascertain whether he is jaundiced or not. Such a case as this is always of a chronic, intractable character, and this is too frequently connected with a scirrhus state of the liver.

Again, in this man's case we cannot detect any appearance of bile in the evacuations; this is another good sign. When jaundice co-exists with bilious stools, the prognosis is, generally speaking, bad. A but slight tinge of yellowness of skin, and the continued presence of bile in the stools, are two circumstances which I always look upon as indicative of an unmanageable and frequently incurable affection. It generally depends on a scirrhus state of the liver, or some organic derangement beyond the power of medical treatment. Again, another good sign in jaundice is, that as long as the bile is absent in the stools it should be present in the urine. If a patient labouring under jaundice has clay-coloured stools, and you find on examination that his urine becomes heavily laden with it, it is a very favourable circumstance; for it shows that, although the usual channel for the exit of bile from the system is stopped up, nature has provided a remedy for the evil by establishing another emunctory.

You can understand, then, the reason of the anxiety I felt at finding that this patient's urine was becoming paler and diminishing in quantity, at a time when bile was not present in the stools. In acute cases of jaundice, you should always bear in mind that patients will sometimes have a complete suppression of the biliary discharge, followed by coma, without any symptoms of disease of the brain. Why this occurs in some and not in all cases we cannot understand, but, from whatever cause it may arise, we find that in some instances jaundiced patients become stupid and lethargic, and die in a state of confirmed coma. In such cases there is always very great danger, and where coma has appeared as a prominent symptom of jaundice, you should always give an unfavourable prognosis. I have never seen but one patient recover under such circumstances.

On the other hand, it is equally curious that derangement of the urinary system is one of the most common symptoms of disease of the brain. You will therefore understand the cause of my alarm, when I observed a diminution of the urinary secretion in this patient. As soon as I perceived this symptom, though the patient had been taking mercury and was improving at the time, I immediately administered a diuretic, and this fortunately succeeded in producing a copious flow of urine. We prescribed the following diuretic, which had been taken for many hours when it produced a decided determination to the kidneys:—

R Misturæ Amygdalarum, fʒviiij.
Nitratis Potassæ, ʒij.
Tincturæ Digitalis, min. xv.
Spiritus Ætheris Nitrici, fʒij. Misce.

of which a tablespoonful was to be taken every second hour.

There is one practical remark to be made on this and other similar cases. As soon as the symptoms of jaundice begin to decline, and bile makes its appearance in the stools, you should attend carefully to the state of the patient, and note any symptom which may occur of an anomalous character. Now, in this patient's case, we observed that a degree of restlessness was present, which terminated in a complete want of sleep. About the time when he began to manifest a degree of improvement, he became quite sleepless without any evident cause, and continued so for two or three nights; and I have already stated in a former lecture that, no matter when this symptom occurs, whether in fever or towards the termination of some acute disease, it always requires your attention. I therefore immediately took proper steps to restore sleep; and accordingly we find, on inquiring this morning, that he has rested well and feels much better. The man had been taking mercury, and his bowels were free; but, not content with this, I gave him a purgative consisting of infusion of senna with electuary of scammony. This he was directed to take early in the morning, so as to secure its operation before night; and about nine or ten in the evening, after his bowels had been freely opened, he took a full opiate, which produced a long and refreshing sleep.

As I have just alluded to the danger to be apprehended when any nervous symptom arises in a case of jaundice, I shall illustrate this view by introducing some very remarkable instances of this form of disease. The three following cases were sent to me by Dr. Hanlon of Portarlington, and I hope that you will value as I do his communication.

Case 1.—“Saturday, July 25, 1840, I was called to visit Miss Maria B—, aged seventeen years. I was informed that she had been previously healthy. On the preceding Wednesday she complained of languor, and in a few hours was attacked with bilious vomiting, which had returned three or four times in every twenty-four hours since. When the vomiting commenced she became jaundiced, and the colour increased in intensity until it assumed a greenish-yellow tint. The bowels were constipated for two days before the vomiting began, and had remained so notwithstanding the apothecary in attendance had given her repeated doses of purgative medicines. Effervescing draughts and other means intended to allay the vomiting had been given without success.

“I found the tongue thickly coated with a yellow mucus, tenderness of the epigastrium and right hypochondrium, thirst, abdomen not tender on pressure, urine scanty and high-coloured, pulse 80, slight headache, pupils natural, complains of want of sleep, and appears fretful and anxious.

“Calomel combined with compound extract of colocynth and croton oil internally, aided by purgative enemata, caused a small, dark, and offensive motion towards evening. Leeches were applied to the epigastrium and region of the liver, followed by stupes, three grains of calomel every fourth hour, and a purgative draught consisting of infusion of senna and tinctures of senna, jalap, and cardamoms, after every second dose of calomel.

“Sunday.—Vomited twice since yesterday evening; the bilious matter of a darker colour; tongue still loaded; thirst diminished; tenderness of epigastrium and right hypochondrium much less; bowels moved twice in the course of the night—motions larger but still very dark in colour; pulse 80; headache relieved; pupils natural; colour of skin the same; slept for two or three hours in the night; same treatment continued.

“Monday morning, 5 o'clock.—I was called up in haste to visit her. It appeared that two hours before my arrival she complained of violent headache and intolerance of light, vomited a dark brown matter resembling coffee

grounds ; soon afterwards became very restless, and gradually fell into a state of stupor. I found her in imperfect coma, the pupils excessively dilated and insensible to light, the eyelids closed. She flung herself every minute or two from one part of the bed to another, and uttered a faint subdued scream ; she was very unwilling to be interfered with ; pulse 60, and oppressed ; kin of a still deeper tint of greenish-yellow.

"The assistance of Dr. Tabuteau and Dr. Jacob was procured in consultation. Fourteen leeches were applied to the temples ; the head shaved and cold cloths applied to it ; twelve grains of calomel in the first dose, and five grains every second hour afterwards ; purgative enemata were employed every second hour. Cold effusion on the head was subsequently used to a great extent, but without producing any change in the state of the pupils or the coma ; mercurial inunction in the region of the liver and insides of the arms was commenced, and a large blister applied to the scalp.

"At 11 o'clock, A.M.—She was seized with violent convulsions, which lasted about a minute, and were accompanied by shrill screams ; the right extremities appeared more strongly convulsed than the left, the mouth was drawn to the left side. The convulsions returned every thirty or forty minutes with the same violence and screaming, until three o'clock, P.M., when they became less violent, but much more protracted in duration, and gradually passed into a continued spasm, or jerking of the extremities. She threw up occasionally a mouthful of the same dark matter which she had previously vomited. The administration of the calomel was relinquished, as every attempt to give it brought on a return of the convulsions. The mercurial inunction was assiduously continued, but no mercurial fetor could be detected on the breath ; the coma became more profound ; the pulse rose to 108, small, fluttering, and finally intermitting ; sordes collected on the teeth ; the urine and feces passed involuntarily ; the breathing, towards the close, became stertorous, and she expired at 11 o'clock the following morning. No examination of the body was permitted.

Case 2.—"Monday, March 29, 1841, I was requested to visit Miss Charlotte B—, aged eleven years ; sister of the former. She had been previously healthy ; for the last two days has had the usual symptoms of a feverish cold, which are attributed to her having wetted her feet. I found the tongue loaded ; tenderness of the epigastrium ; none in the region of the liver ; thirst ; bowels confined ; urine scanty and high coloured ; pulse 120 ; no headache ; pupils natural ; no discolouration of the eyes or skin. Six leeches to the epigastrium, to be followed by stuping, purgatives, diaphoretic mixtures and diluents prescribed.

"Tuesday morning, 9 o'clock.—Appears better ; slept some hours in the course of the night ; tongue cleaner ; thirst diminished ; tenderness of the epigastrium much less ; no tenderness on strong pressure in the right hypochondrium ; bowels have been strongly acted on four times ; motions dark and offensive ; urine more copious and paler ; pulse 92 ; no headache ; pupils natural ; no discolouration of the conjunctiva or skin.

"Having been absent from home during the day, I hastened, on my return at eight o'clock in the evening, to visit her, and was greatly surprised to find her in the same state as her sister had been. It appeared that about three o'clock she became heavy and languid, and the skin became slightly jaundiced. She complained of headache and intolerance of light ; vomited a dark brown matter resembling coffee grounds ; tossed about from one part of the bed to another ; refused to answer questions, and fell into a state of insensibility ;

the bowels had been moved twice, the motions dark but not offensive. I found her in a state of imperfect coma, the eyelids closed, the pupils excessively dilated, and insensible to light; pulse 64 and oppressed; skin jaundiced. In a few minutes after my entering the room she was seized with violent convulsions, which were accompanied by shrill screams, and lasted about a minute. Pressure on the right hypochondrium appeared to give her pain.

"Upon my requesting that additional medical aid should be procured, her friends declined having it, on the ground that the case appeared precisely the same as her sister's, and all our efforts on that occasion had been unavailing. Under these circumstances I had recourse to the same plan of treatment as that adopted in the preceding case: cold affusion on the shaven head; ten leeches to the right hypochondrium; mercurial inunction on the right side and inside of the arms, in the intervals between the convulsions; strong purgative enemata frequently repeated, and a large blister on the scalp. The disease, quite uncontrolled by these means, pursued precisely the same course in every particular as the former one. The convulsions continued most violent for two hours, when they began to be less violent, but much more protracted in duration, until they passed into continued twitchings of the muscles of the extremities. The coma became more profound; the breathing stertorous; sordes collected on the teeth; and she expired at seven o'clock the following morning.

"Her friends, being now alarmed for the safety of her surviving brothers and sisters, became very desirous that the body should be examined. Dr. Tabuteau, who had seen the former case in consultation, assisted me in making the examination. The following are the results:—Examination made thirty hours after death; surface of the body jaundiced.

"*Head*.—Pacchionian glands preternaturally vascular; venous turgescence generally over the surface of the brain, with increased vascularity of the middle, and especially the left anterior lobes; substance of the brain much more vascular than usual; great vascularity of the choroid plexus; none of the optic thalami or corpora pyramidalia; the entire surface of the base of the brain highly vascular, particularly at the crura cerebri, pons varolii, and medulla oblongata; no fluid found in the ventricles.

"*Abdomen*.—Numerous spots of extravasated blood in the omentum; several small patches of inflammation along the small intestines; stomach apparently healthy.

"*Liver*.—Size natural; colour, externally of a dull yellow, with several dark spots about the size of a half-crown piece; consistence, less than usual; structure, minutely granular, and of a very peculiar crimson-orange colour, somewhat resembling what might be supposed to result from an intimate mixture of arterial blood and bile; gall bladder distended with bile of the usual appearance. *Thorax* not examined.

"I endeavoured to preserve portions of the liver in a dilute solution of corrosive sublimate and diluted alcohol, but they gradually lost their characteristic appearance in both fluids.

Case 3.—"Friday, June 18, 1841, I was called to visit Miss Jane B—, aged eight years; sister of the two former. I was informed that she had been previously healthy. This morning she appeared languid, and was attacked with bilious vomiting. No cause can be assigned for her illness. I found the skin jaundiced slightly; the tongue loaded; tenderness of the epigastrium and right hypochondrium; thirst; bowels confined; pulse 108; no headache; no

intolerance of light ; pupils natural ; urine scanty and high coloured. Eight ounces of blood were immediately taken from the arm, which afterwards proved to be cupped and buffed ; eight leeches applied to the region of the liver, followed by stupor ; twenty grains of calomel given at once, and a strong purgative draught every fourth hour until the bowels are fully acted on ; three grains of calomel and one and a half of James' powder every third hour after purgation ; cold to the head.

"Saturday.—Slept none ; skin more deeply jaundiced ; tenderness of the epigastrium diminished ; heat of the right hypochondrium still remains ; tongue yellowish ; vomited twice since yesterday evening ; urine tinged with bile and more copious ; bowels moved four times ; motions dark and offensive ; pulse 110 ; headache and some intolerance of light ; considerable restlessness. Six leeches to the right side, four to the temples ; cold to the head ; a blister to the nucha ; mercurial inunction ; five grains of calomel and one of James' powder every third hour. I now watched the case with the greatest interest and anxiety.

"Sunday evening.—Slight mercurial fetor of the breath ; tongue beginning to clean ; tenderness of the right side diminished ; bowels moved three times ; motions less dark and offensive ; pulse 90, and soft ; headache and intolerance subsided ; restlessness entirely gone ; some return of appetite. Calomel and James' powder were continued every fourth hour until a slight salivation was established, and cold carefully applied to the head. No unfavourable symptom subsequently appeared. The tongue became clean, the pulse fell to the natural standard, the motions became more healthy in appearance, the appetite returned, and under the use of four grains of calomel at night, and a strong dose of black draught the following morning, repeated every third night for three weeks, the jaundice disappeared, and she has remained quite well up to this period."

The next case to which I shall call your attention was one of jaundice arising from inflammation of the gall bladder, in which nervous symptoms also occurred and were followed by death ; it is that of Anne Milton, a healthy, fine young woman, aged 20 (servant), admitted into the Meath Hospital November 1st. About five weeks ago was attacked with pain in the right hypochondrium, extending into the epigastrium, which lasted for a fortnight, and was followed by jaundice and high-coloured condition of urine. She does not recollect whether the fæces were whiter than usual. After the skin got yellow the pain in the side diminished ; but during the whole time it lasted she had constant vomiting and nausea. Three days after the setting in of pain, and ten before the appearance of the jaundice, she became affected with excessive itching of the skin, which prevented sleep : *this itching ceased as soon as the jaundice appeared.* * She had no pain in either shoulder. At the time the skin became yellow, an eruption of an herpetic character appeared over the hepatic region. She was under no treatment for the pain ; but to the eruption a mixture of gunpowder and blood was applied.

Present Symptoms.—Skin and conjunctiva deeply jaundiced ; all objects appear yellow ; urine high coloured ; fæces white ; no itching of skin ; the linen over the eruption is stained yellow ; tongue clean and moist ; great thirst ; appetite good ; stomach not sick ; no pain after taking meals ; bowels con-

* The same phenomenon was observed in a man named Jones, who laboured under the most severe jaundice ; in whose case the itching preceded the appearance of the jaundice for two months, and discontinued on the discolouration of the skin becoming established. These two cases are irreconcilable with the generally received opinion, that the itching depends on the deposition of the constituents of the bile in the texture of the skin.

fined ; sleeps badly ; no headache ; pulse 80, full and soft ; breathing hurried ; no cough or physical sign of disease in either lung ; the heart's action strong, but the sounds are normal and distinct ; complains of no pain when the right hypochondrium is pressed, or when the ribs are pushed against the liver, *but she has slight pain at a point between the right hypochondrium and epigastrium, greatly increased by pressure.* There is some fullness of the latter region, but percussion does not give a dull sound ; no enlargement of the liver noticeable or detected by percussion ; the abdominal muscles are very irritable, and are thrown into spasms by the least effort to examine the abdomen minutely ; she has no pain over either lumbar region. Poultices to the eruption ; twelve leeches to the painful part.

R. Pilulæ Hydrargyri, gr. x.

Pulveris Ipecacuanhæ compositi, gr. v.

Mice et divide in pilulas tres, sumat unam quartis horis.

Adhibeatur enema purgans.

November 5th.—Pain relieved by leeches ; no other change ; appetite extremely good.

November 6th.—Was attacked last night with pain in the stomach ; no vomiting ; pulse to-day fuller and quicker, 100 ; breathing not hurried ; 'feels unwell' to-day ; tongue clean ; some thirst ; appetite good ; bowels confined ; skin dry ; no change in the jaundice ; complains of tenderness at the point before mentioned. To take five grains of blue pill three times daily. Twelve leeches to be applied to the epigastrium.

November 7th.—on the previous evening she became delirious, and this morning (7th), at the hour of visit, was quite comatose, and soon after died.

Post mortem.—The brain and abdominal viscera were the only parts examined. The liver was not by any means enlarged, and a section of it disclosed no excess of blood. It was of a light brown colour, tinged with yellow, as if from a superabundance of the colouring matter of the bile. The gall bladder was distended, and on being opened was found completely filled by a dark green mass of a tenacious viscid nature, apparently lymph. This substance was of the same pyriform shape as the gall-bladder, and terminated by its narrow extremity at the commencement of the gall duct. On its removal, the lining membrane of the gall-bladder presented a bright scarlet colour and villous appearance, and the natural and beautiful 'honeycomb' arrangement of the mucous membrane was completely effaced. There was no softening or ulceration of the membrane, nor was the colour different in any part. It resembles very much the appearance of the mucous membrane in acute laryngitis. The walls of the gall-bladder were much thickened. There was no obstruction of the ductus choledochus, the cystic or hepatic ducts, and their lining membrane was quite free from any unusual vascularity ; the duodenum and stomach were stained with the colouring matter of the bile, but in other respects were healthy ; no gall-stones or other obstruction ; the kidneys were natural.

Cranium.—The dura matter was stained of a yellow colour ; there was no thickening nor opacity of this membrane ; the arachnoid and pia mater were quite healthy ; the substance of the brain was firm and free from any unusual vascularity ; no effusion of lymph in any part ; the ventricles were not distended with fluid beyond what is normal, but the fluid, though in small quantity, was of a yellow colour, and the surface of the different parts contained

in each ventricle was also of a light yellow colour ; the nerves and all other parts of the organ were free from this staining.

It may not be deemed superfluous to mention here the details of a case which was lately under the care of my esteemed colleague, particularly as it required some skill to distinguish the features which it presented from the ordinary and so frequently fatal combination we have just spoken of. An old woman was admitted in September into the Meath Hospital, labouring under jaundice, purpura hæmorrhagica, and palpitations of the heart. Her habits were very intemperate, and shortly before admission she had been indulging largely ; and when first seen by Dr. Stokes, she presented, in addition to the symptoms already enumerated, many of the features of delirium tremens. She was exceedingly feeble, and her legs were anasarcaous. After being under treatment for some time she began to improve ; when one night she was attacked with violent delirium, convulsions, and imperfect paralysis of the right side, she lost the power of speech, and the mouth was drawn frightfully to the left side.

The face presented almost all the phenomena which attend Bell's paralysis of the portio dura, *but the head was cool, she complained of no uneasiness in this region ; the eyes were quite natural, and no increase in the strength of the pulsation of the carotid or temporal arteries could be detected. She lay sobbing and frequently sighing*, and appeared extremely anxious to excite the sympathy of the spectators. These circumstances induced Dr. Stokes to make a most careful examination of the patient ; and having premised to the class that the case differed in many particulars from the ordinary combination, and that should it appear that there was really a connexion between the jaundice and the supervention of the cerebral symptoms, the prognosis ought to be most unfavourable. He ascertained after some time, from the nurse and the other patients, that this woman, though fifty years old, was extremely hysterical, and had, during her sojourn in the hospital, many attacks somewhat similar, though much more mild ; and by a further reference to her husband, it was discovered that she had been subject to these hysterical attacks for the last thirty years, and that she had frequently been affected with convulsions, raving, and even temporary paralysis, for years before the occurrence of the jaundice.

The nature of the case was then quite evident, and the patient was saved the risk which might have attended the employment of remedies the supposed complication would have indicated. It may, with truth, be said, that this was a very unusual combination ; but it shows, in my opinion, the necessity of patiently investigating and carefully scrutinising the characters of any rare or hitherto unnoticed symptom, or combination of symptoms, in any particular case ; for who might not have mistaken the cerebral symptoms in the example before us, for the common complication which occurs in jaundice ?

DISEASES OF THE KIDNEY.

LECTURE LIV.

BRIGHT'S DISEASE—DIABETES—CARBONATE OF AMMONIA IN THE URINE—
RECTO-VESICAL FISTULA.

LET me first direct your attention to-day to the case of a man named Murphy in the chronic ward, who came in with bronchitis accompanied by anasarca. He had old bronchitic cough, copious expectoration, and orthopnoea ; but he had no symptom of disease of the heart ; his pulse was regular and rather slow, he had also albuminous and scanty urine, but without any fever, thirst, or nausea. The recent origin and sudden appearance of the disease induced me to look upon it as a case of acute dropsy, and I commenced the treatment by antiphlogistic measures, which, as you may have perceived, have been followed by remarkable benefit. What I wish to call your attention to particularly in this case is the state of the patient's urine. On his admission, we found that his urine was highly albuminous ; when submitted to the action of heat at the temperature of 170° it coagulated rapidly, and showed distinct traces of the presence of a large quantity of albumen. Yet, under the use of opium in moderate doses, this man's urine became in two or three days perfectly free from every trace of albumen, and has continued so ever since.

Now, this case alone would be a sufficient refutation of the opinions of those who look upon albuminous urine as a pathognomic sign of disease of the kidneys as described by Dr. Bright, and who are in the habit of marking such cases in the hospital as cases of "Bright's Kidney." It appears rather strange, as in our case, that a man should have "Bright's Kidney" to-day, and not have it the next day. We have had a great many instances of this kind ; and in various cases which came under our treatment in this hospital, I have shown that this state of the urine may depend on mere functional disease of the kidney. Indeed nothing is more common than to meet albuminous urine in the dropsy which succeeds scarlatina, and yet most of the patients perfectly recover. I had lately an opportunity of examining the kidneys of a boy named William Young, who was admitted into Sir Patrick Dun's Hospital on the sixth day from the commencement of anasarca after scarlatina. This boy's urine had a specific gravity as high as 1027, and contained an enormous proportion of albumen. He died suddenly of convulsions the fourth day after his admission. His kidneys were in every respect healthy.

One word with respect to the diuretic remedies, which in this case I have employed with remarkable success. Having removed the acute symptoms by antiphlogistic treatment, I prescribed the following decoction :—

R Decocti Hordei, f3xvj.
Sacchari Albi, ʒj.
Nitratis Potassæ, ʒij.
Acidi Nitrici diluti, f3j.
Spiritus Ætheris Nitrici, f3j. Fiat mistura.
Two table spoonfuls to be taken every second hour.

This is an excellent mixture, and well suited to the stage intermediate between the acute and chronic form of dropsy, where you wish to excite the action of the kidneys, and are afraid of stimulating the system generally. It has acted very favourably in the case before us, having increased the urinary discharge very considerably, without producing any constitutional excitement.

We have recently had another case in the Meath Hospital, in a man named Connell, which afforded us an example of the fallacy of albuminous urine being in all cases a symptom of the disease of the kidney described by Dr. Bright. This man was about fifty years of age, of intoxicated habits, and died from the conjoint effects of consumption and dropsy. The right kidney, on being cut into, appeared pale and granular; it was of the natural size. The left was one of the best specimens I had ever seen of what is designated *Bright's Kidney*. It was hard and very small; the capsule came off readily, and the surface of the kidney then appeared rough and nodulated, indicating the latter and more confirmed stages of the disease. There had been five examinations of the urine made while he was in hospital; it was ascertained to be healthy, and had no trace of albumen.

This coincides with many observations that I have made, and it appears to me very doubtful whether the pathology of this disease, as laid down by Bright, Christison, Rayer, and other distinguished physicians, will be found consistent with the cases which daily occur in practice. The latest and most elaborate treatise which has appeared upon the subject is from the pen of the celebrated Rayer, who has brought forward a great number of facts, but he seems to me not in every instance to have been guided by logical precision in his inductions. Without questioning the accuracy of his observations, I feel myself called upon to protest against several of his conclusions, and cannot help feeling that his treatise exhibits internal evidence of inconsistency. The whole scope and object of his work is to account for certain symptoms, by showing that they are caused by a morbid change in the structure of the kidneys, which he terms albuminous nephritis. The investigations of the morbid anatomist, when legitimately pursued, lead to positive facts, not liable to be misinterpreted or confused, and which ought, in every instance, to be studied of and for themselves. The results of such investigations should be positive and palpable, for, in order to estimate the real nature of the changes observed in any organ, an observation is worth nothing, unless what we see in the dead body distinctly discloses the nature of those changes.

But it seems to me that morbid anatomy will become of very questionable utility, if we permit ourselves to interpret the appearances observed in any organ, not by considering the actual changes it has undergone, as proved by dissection, but by a reference to the symptoms during life. Such a mode of proceeding must necessarily lead us from the true object of morbid anatomy, inverting the hitherto received method of that science, making us explain *structural changes by symptoms, and not symptoms by structural changes*.

That Rayer has fallen into this inverted and illogical method, is evident from the following statement made by himself:—

“There are several striking analogies between simple nephritis and albuminous nephritis. Both are alike produced by the impression of cold and moisture. In the acute stage, with the exception of pus (which is exceedingly rarely, if ever, met with in the albuminous disease), they have every thing in common, the injection of the parenchyma of the kidneys, the increase of their bulk, the yellow discoloration of their substance, &c. In the chronic stage, when this is far advanced, the lesions are so similar, that without various cir-

cumstances drawn from the course of the diseases, from the presence or absence of dropsical effusion, and of albumen in the urine, it would be impossible to distinguish the one from the other."

From another passage it appears to me, that an inference very different from that Rayer draws, may very legitimately be deduced. The passage is as follows :—

"But, on the other hand, some strong points of dissimilarity separate the two morbid states ; and one of the most striking of these is, without doubt, the marked influence which diseases of the urethra, bladder, prostate gland, ureter, and pelvis of the kidney have on the development of simple nephritis, while they seem to exert little or none on that of the albuminous kind."

Now, from these passages combined, it appears that the knife of the anatomist reveals nothing absolutely distinctive between common and albuminous nephritis, and consequently we may be permitted to doubt whether any real difference actually exists between them ; nay, it seems almost positive, and established by Rayer's confession in the second passage, that the alleged abnormal condition of the kidneys is entirely unconnected with the supposed attendant alteration in the urine ; for his confession is very remarkable, that where causes merely local, induce this particular change of renal structure, that change is unaccompanied by the alteration in the urine. All the rules of sound logic, therefore, would lead us to suspect that when such changes in the urine do occur, they arise from some other cause than the renal disorganization. This suspicion is confirmed by the fact, that Bright and his followers have, as I have observed on a former occasion, accounted for changes in the urine, which are nearly identical in the acute and chronic albuminaria, by lesions of the kidney widely different from each other.

In acute albuminaria the general characters of the urine are not much changed, but it is loaded with albumen, occasionally mixed with the colouring particles of the blood, while in chronic albuminaria the albuminous admixture still continues, but the urine is diminished in specific gravity, and its urea and salts altered in quantity. In both, however, the leading characteristic change in the urine is the presence of albumen ; this alteration is alleged to be permanent through the disease, and yet when we accurately examine the described alterations which the kidney undergoes from the commencement to the end of the malady, they are so strikingly different from each other, that it is extremely difficult, if not impossible, to assign the same particular alteration of the secreted fluid to structural changes in the secreting organ, so different, nay, so opposed to each other. Thus, M. Rayer describes six forms of structural changes.

First Form.—The size and weight of the kidneys are considerably increased, from four ounces, their ordinary weight, to eight or even twelve ounces ; their consistence is greater, but is not indurated ; their surface presents a morbid red hue, and appears spotted over with a number of small red points of a deeper colour than the rest of the organs. On making an incision into the kidney, we find that increase of bulk is owing to tumefaction of its cortical substance, which exhibits numerous red spots similar to those visible on the surface, and which, according to Rayer's researches, correspond with the glands of Malpighi highly injected with blood. The tubular substance of the kidney is of a duller red, and its striæ are less apparent than in the healthy condition. The mucous membrane of its pelvis and calices is sometimes injected, and exhibits vascular arborization on its surface.

The sixth Form.—This corresponds with the third variety described by Dr.

Bright. The diseased organ is sometimes larger, but often smaller than in health; it is hard, and more or less irregular or tuberculated. We observe few, or perhaps none at all, of the milky spots or granulations on the surface of the affected kidney; but a certain number are always found, when an incision is made into the cortical substance. The surface of the kidney is indurated, corrugated, and mamillated; but, although sprinkled over perhaps with minute asperities, it does not exhibit the genuine granulations of Bright. *In some cases, it must be confessed, that the anatomical forms of the disease are so closely alike to those observed after simple chronic nephritis, that it would be scarcely possible to point out the distinction between them, if we did not take into account the phenomena present during the life of the patient!* In this advanced stage of the disease the investing membrane of the kidneys is always thickened, at least in several points, and strongly adherent.

Now, anyone who carefully examines kidneys affected with structural changes so different, and in every physical quality of their tissue so opposed, will feel great difficulty in believing that one and the same effect can be produced by both on the renal secretion, viz., the appearance of albumen in the urine.

At present I have not time to assign my reasons for dissenting from M. Rayer in several of the propositions he lays down in the course of his work; but one assertion of his is too manifestly inconsistent with the facts to allow it to pass unnoticed. Endeavouring to establish a means of diagnosis between dropsy caused by disease of the heart and that arising from albuminous nephritis, he says that the dropsical effusion caused by disease of the heart usually commences in the lower extremities, and extends upwards, whereas that arising from the lesion of the kidneys is often first perceived in the face. I have no hesitation in asserting, from the result of my own observations, corroborated by that of Surgeon Adams, and borne out by the testimony of Corvisart, that when disease of the heart occasions dropsy, the most usual site of the first anasarcaous swelling is the face, neck, and upper extremities. But the doctrine of Rayer, thus liable to a valid objection, deduced from general reasoning, will not stand the test of facts; for the whole basis of his theory falls to the ground, if, in a single instance, we find the structure of the kidneys altered remarkably, in the way he describes, in a patient whose urine during life exhibited none of the characters that he assigns to the disease. Cases of this nature I have already described to you, and such have been observed by others.

While one of the cases that I have brought before you proves that we may have Bright's kidney without albuminous urine, the other shows that we may have albuminous urine without Bright's kidney; facts which, coupled together, militate strongly against the hypothesis, that the change in the structure of the kidney is connected with the appearance of albumen in the urine. But the discussion of this subject is important, not only in a theoretical, but also in a practical point of view. Dr. Bright, in page 70, vol. i. of his *Medical Cases*, lays down the doctrine, that in cases of dropsy the presence of albumen in the urine ought to deter us from the use of mercury, an opinion which is opposed to my experience; for I have treated several such cases successfully with mercury, and amongst others, I may allude to that of Staff-Surgeon Finney, and to the case of Lindsey, a patient lately in the Meath Hospital.

The more recent investigations also of Johnson and Toynbee, and the results of which have been concurred in by Dr. Bright, prove the fallacy of Rayer's pathological views, for they show that Bright's disease of the kidney is a *fatty* degeneration of that organ—consisting in “a secretion of fat or oil

globules in the epithelial cells which line the tubuli urineferi," and that the presence of albumen or blood in the urine and the wasting are secondary phenomena dependent on the mechanical pressure of the accumulated fat. I cannot now enter into a disquisition on these views of the pathology of this disease, but I would wish to refer you to the original essays, which you will find in the 29th and 30th volumes of the *Medico-Chirurgical Transactions*.

There is a man at present in hospital labouring under diabetes; he furnishes one of the best examples of the disease you can meet, and I would recommend you to study his case with attention. He has got the notion that his complaint is one of no ordinary interest, and he comes occasionally to remain a while in hospital and exhibit himself to the class. It is unnecessary for me to enter into any general description of this affection; you will find a very satisfactory account of it in the *Cyclopædia of Practical Medicine*, and a shorter but equally valuable one in Dr. Copland's Dictionary. The most remarkable features of the disease are those connected with the change in the quality and quantity of the urine. With respect to the former, it is called *mellitus* when it contains a large proportion of sugar, and *insipidus* when it wants the saccharine taste, and presents nothing beyond a mere watery flavour. With regard to quantity, the change is very remarkable: the man who is at present in hospital passes eighteen pints in twenty-four hours. In the normal state a man passes two or three pints; this, therefore, must be considered as an enormous increase.

When you come to examine diabetic urine chemically, you find its specific gravity increased. Natural urine ranges from 1015 to 1020, diabetic from 1025 to 1050. Now in every pint of urine of the specific gravity of 1030, there is contained nearly an ounce and a-half of solid animal matter. If you take a pint of this man's urine, and expose it to a temperature of 170° on an evaporating dish, until all the watery parts were dissipated, there would remain at least an ounce and a quarter of solid animal matter. Now if you multiply this by eighteen, it will give you more than a pound and a quarter of solid animal matter, which this man loses in the course of twenty-four hours by means of the kidneys alone. I need not tell you that this is a very considerable loss, and hence it is that the man naturally calls for large quantities of food to replace it. And such is the nature of diabetes in general; patients labouring under it have the activity of the digestive organs increased in proportion to the drain from their system: and were it not for this, they would be rapidly run down by the emaciating effects of the disease. We notice this extraordinary activity of the digestive system in other diseases which have a tendency to produce emaciation: thus a patient recovering from long fever will frequently take and digest, with facility, quantities of food which produce repletion in a state of health.

In the case before us, one of the most remarkable things is the length of time the disease has lasted. The man has been now ill for more than three years; it is nearly twelve months since he was here before, and at that time he was just as bad as he is at present. He was relieved then, and went out of his own accord, and continued since nearly in the same state we found him at his last admission. He states that he has been ever since passing from twelve to twenty pints of urine in the day. He is, however, able to go about as usual, eats, drinks, and sleeps well, and, with the exception of the kidneys, all his functions appear to be natural; indeed, he appears to be exceedingly active and vigilant; he exercises a surveillance over the patients, nurses, and

wardmaids, exposes all their sins of omission or commission, and might be now and then a very useful kind of person in an hospital.

With respect to the state of his skin, I may observe that it is by no means so dry, acrid, and harsh as we frequently find in diabetic patients; indeed, it feels nearly natural, and is partially covered with moisture at various times of the day. Some persons, looking almost exclusively to the condition of the skin, have taken a very limited view of this disease. They consider it as arising from the perspiration being repressed and turned inwards on the kidneys. This, however, is by no means satisfactory. Some of the worst cases I have ever seen were accompanied by colliquative sweats. A gentleman came from the country last June, to consult me for some affection of the digestive system; on inquiring into his case, I found that he was in the habit of passing very large quantities of urine. I took some of it to Dr. Apjohn to analyse, and it was found to be of the specific gravity of 1049. Now, this gentleman had been subject to profuse perspirations, and used at that very time to sweat copiously every day. In the case above stairs, the patient's breast and neck are frequently bedewed with perspiration.

With respect to the opinions entertained concerning the nature of this disease, I beg leave to refer you to Dr. Copland's Dictionary; for my own part, I can form no idea of it except that it is a functional derangement of the secreting powers of the kidneys. I look upon all those hypotheses which have sought to account for diabetes by referring it to derangement of the digestive organs, as useless and unsatisfactory; nor do I see why, in cases of disease, we are to look for all the matters, secreted by the kidneys, in the blood. It is true that there are but few of the matters secreted by any glands in a state of health which may not be discovered in the blood. All or most of the proximate principles of the matters secreted by the salivary glands, liver, and kidneys, are to be found in the blood during a state of health, but in disease the case is quite different. Diseased vessels or parts may assume the function of combining animal principles, in proportions and modes that form results differing in their nature from any thing usually to be found in the system.

I confess I can see no difficulty in supposing that a substance so simple as sugar is, may be formed from the elements of the blood, or that the vessels of the kidneys may, in a state of disease, take on a new action and secrete this substance with great rapidity. Sugar is one of those substances which are easily formed by nature; its elements are few and simple, and it may be formed with ease by beings belonging to the animal and vegetable kingdoms. From how many individuals of the vegetable class do we not procure it with facility? How often do we meet it as an animal secretion? Indeed, I have strong suspicions that a great many persons in society, who labour under what is merely considered in the light of indigestion, are affected with diabetes. This was the case of the gentleman whose urine was of the remarkably high specific gravity of 1049. He still continues to pass a larger quantity of water than natural, but not near so much as formerly; its quality, however, has not improved so much as its quantity, and it still contains sugar. The state of health he enjoys is, with the aid of proper regimen and precautions, far from bad, and he is enabled to discharge effectively the numerous duties attached to the agency of an extensive estate in the county of Carlow.

Sir Henry Marsh, who has paid much attention to this subject, attests the prevalence of chronic diabetes in a mild form. It is to be feared that many

cases escape detection, because the quantity of water voided by the patient being but little increased, the idea of diabetes does not suggest itself to the mind of the physician. With regard to the quality of the urine, I may here remark, that diabetes may be divided into two sorts : the first includes those cases in which the quantity of urine is increased, but its specific gravity is less than natural ; this comprises hysterical and nervous varieties of increased flow of water : the second, and to which, indeed, the term diabetes ought properly to be restricted, embraces those cases where the urine contains an animal principle either not naturally found in it or found in increased quantity. To this belong diabetes with sugar, with albumen, and with urea, viz., diabetes mellitus, diabetes albuminosus, diabetes ureosus. The latter is by far less common than the other varieties. I have not myself met with any example, but it has been described by Dr. Bostock and others. The albuminous diabetes is often associated with dropsy, which latter attracts the chief attention of the physician. In some cases, however, the dropsical swellings are either very slight or altogether absent, while the urine is much increased in quantity, and highly loaded with albumen.

A remark with respect to dropsy was suggested to me this morning by one of the cases in our chronic ward, and, lest I should pass it over hereafter, it may be as well to introduce it here. Dropsical effusion is, in every instance, produced by diseased action of the vascular system, and is the result of a morbidly affected secretion on the part of the extreme vessels. Now, like every other product of secretion, the effused fluid is liable to undergo great and sudden variations as to its quantity, variations produced by corresponding changes in the vascular or in the nervous system, which latter is so intimately associated with the functions of secretion. This circumstance it is which occasions the swollen parts in anasarca to vary so continually in chronic cases of this disease, one part appearing more cedematous and again subsiding on the morrow. Now, dropsical patients are morbidly attentive to every thing that passes, and are constantly dwelling on all the particulars which relate to their swellings. In hearing their report of themselves, you must not therefore allow yourselves to be misled, and you must never attribute any great importance to the local changes, which are too often merely temporary.

But what I want to fix your attention on at the present is the fact, that the dropsical effusions to which internal organs are liable, are subject to similar unaccountable changes, whether of increase or diminution, and that from day to day in some cases. Thus, an anasarca patient will complain of having spent a wretched night, on account of cough and difficulty of breathing. You find his face, neck, and the integuments of the chest very cedematous ; and on examining his chest, great dullness is found in one lung, with moist crepitus ; great cedema of that lung in fact exists. In a day or two after, and without any assignable reason, you find that the external cedema has much diminished, and that your patient, free from dyspnoea, has slept comfortably. You examine the chest, and you find a corresponding subsidence of the pulmonary infiltration. The same capricious increase or diminution is observed also in other secretions, as, for instance, in that of the bile.

I was the first, I believe, several years ago, to announce the discovery of carbonate of ammonia in urine *recently voided*, and that in considerable quantity, causing the fluid to effervesce briskly on the addition of an acid. The

observation did not excite the attention, if it met the eye, of Dr. Prout and others, who have since written on the composition of the urine in disease. As a second case of the kind, however, has very lately come under my notice, I think it well to return to the subject. The case, the particulars of which I formerly published, was that of a young man labouring under long-continued fever, attended with maculæ. The urine contained carbonate of ammonia for four or five days, at a time he was extremely bad. As he improved, this salt disappeared.

We at first thought it might have been formed in consequence of the urine undergoing decomposition in the bladder; but it was proved that this was not the case, for when the bladder was completely emptied, the urine formed in it in two hours afterwards was found equally loaded with the same salt. There was no disease of the mucous membrane of the bladder whatsoever, and we were therefore justified in concluding that the carbonate of ammonia existed in the urine as secreted by the kidney. Although I afterwards examined the urine of numerous fever patients, I never met with the same salt.

The case now under our observation at the Meath Hospital is very different, indeed, in every thing but the presence of this salt in the urine. A strong and athletic man, employed by the Ballast Board as a labourer, had occasion to work several days standing up to his knees in water. Being at the time constipated, he took a large dose of glauher-salts which acted briskly on the bowels, but he did not cease to work in the cold water notwithstanding. The consequences of his imprudence soon became apparent; for the purgative effect of the medicine was scarcely over, when he was attacked with most violent pain in the belly, accompanied by great distention of the stomach and bowels, thirst, headache, and fever.

In a few days he was admitted into the Meath Hospital, labouring under anasarca, ascites, and intestinal tympanitis. Bleeding, leeching, and the most active antiphlogistic treatment greatly abated his sufferings, and diminished the intensity of the disease; but I fear all our efforts will prove unavailing to procure his final recovery. At the period that the pain and tenderness of the belly, together with the character and frequency of the pulse, demanded the first application of leeches, I was very much surprised to hear from Mr. Knott, that the urine contained carbonate of ammonia in considerable abundance. It was examined in Dr. Apjohn's laboratory by Mr. White, and was found to effervesce briskly on the addition of the mineral acids.

This appearance was owing to carbonate of ammonia in great excess. It was rather of a pale straw colour, contained no albumen, and acted on the vegetable colours as an alkali. It deposited a precipitate consisting of the ammoniaco-magnesian phosphate, and phosphate of lime. This remarkable urine was supposed by some who have witnessed the violence of its effervescence on the addition of an acid, to owe the formation of its ammoniacal salt to decomposition during its retention in the bladder. But that this was not the source of the carbonate of ammonia was proved by many circumstances. It was perfectly limpid when voided, and had not the slightest smell of putrescence, such as exhales from urine even in the commencement of decomposition. Again, when our patient completely emptied the bladder of its contents, and in half an hour afterwards again passed a small quantity of water, this latter was found as copiously loaded with carbonate of ammonia as the former. It necessarily follows, therefore, that the urine, as secreted by the kidneys, contained the carbonate of ammonia, which seemed to be a vehicle for excreting those elements which are usually combined so as to form urea; *for in this man's urine not a trace of urea could be discovered.*

The occasional presence of ammonia in the urine, in the form of the ammoniaco-magnesian phosphate, has been long known to chemists: carbonic acid is of much rarer occurrence indeed; for not more than one or two cases have, I believe, been observed, in which carbonate of lime has been found forming a urinary calculus in the human bladder, although so common in swine and other animals.

The *post-mortem* examination of this man, who died soon after, exhibited the kidneys rather enlarged, and somewhat turgid with blood; the bladder perfectly healthy; the liver mis-shapen, round at the edges, smaller than natural, indurated, and composed throughout its whole mass of globular masses, very firm and pale, forming a variety of what is called scirrhus liver.

Before concluding, I wish to lay before you the particulars of a very singular case, in which there was a communication between the rectum and bladder, and fæcal matter passed through the urethra.

Rev. Mr. S., aged 68, lived for four months after a cancerous ulcer of the rectum opened into the bladder. The first night after fæcal matter found its way into the bladder, he had violent pain, much constitutional disturbance, and collapse; these ceased in a few minutes. He continued to pass, for three weeks, urine and large portions of soft thin fæces per urethram, and often wind with very loud explosions. After three weeks the urine became quite natural, but flatus passed more or less at intervals daily by the urethra. Fæcal matter did not reappear in the urine for a fortnight, and during the remainder of his illness he had several intervals of many days, without any deviation of the urine from the natural quality. After the first opening of the cancer into the bladder, no pain was occasioned by the presence of the fæcal matters in the bladder, nor did it any time produce inflammation or discharge from the urethra, nor was collapse produced: at all times the bowels were daily opened per anum, the stools being liquid. During the last fortnight of the patient's life, the urine was constantly charged with fæcal matter; it is plain that the cancerous opening was at first, and for a long while, valvular;—at last, as was proved by dissection, the bladder was found most extensively destroyed, and communicating with the cavity of the intestine by a very large opening; there was no escape of fluid into the abdominal cavity.

LECTURE LV.

DROPSY.

Two cases of dropsy, in the chronic ward, first claim our attention. Both have occurred in persons who have previously enjoyed tolerably good health, and in both the disease seemed to be unaccompanied by organic lesion of any important viscus. One of the patients, J. Austin, states that he has been ill two months before he came into hospital, and acknowledges that his illness was the result of long continued habits of inebriety. Careless and intemperate in his mode of life, and frequently exposed to cold and wet, he got an attack of bronchitis, accompanied by a sense of constriction about the chest, and difficulty in breathing. He was bled for this, and states that the bleeding relieved his dyspnoea; but about this period he remarked that an anasarous swelling appeared in his face, neck, and chest.

In this case we have a specimen of the ordinary history of dropsy in this country:—first, intemperate habits; next, exposure to cold, followed by bronchitis or pneumonia; and then dropsy, commencing in the face, chest, and upper extremities. I have, on a former occasion, pointed out to the class the importance of observing in what part of the body the dropsical swelling first appears; because, by doing so, we obtain a more accurate idea of its nature, and are furnished with a clue towards discovering its source.

Dropsy is generally the consequence of organic disease of some deep-seated viscus. When it is produced by thoracic disease, as bronchitis, pneumonia, or affections of the heart, it is said that the swelling always begins in the face, neck, trunk, and upper extremities; when it depends upon chronic hepatitis, disease of the spleen, obstruction of the system of the vena porta, or disease of the mesenteric glands, the swelling commences in the abdomen, and then proceeds to the lower extremities; but when it arises from mere debility, the consequence of hectic fever, long continued diarrhoea, or a cachectic state of the system, the effusion is first observed in the lower extremities, coming on in the evening, and again disappearing towards morning. The history of dropsical swellings, therefore, by informing us in what part they first appeared, is often sufficient to indicate the general nature of the producing cause.

When this man came into the hospital, his cough had disappeared, and there were not any unequivocal symptoms of disease of the heart, but he had considerable dropsical swelling of the face, chest, and superficial parts of the abdomen; his appetite was bad, and on examining his urine, we found it loaded with albumen, and of the specific gravity of 1029. Though he had no fever or dyspnoea at the time, we commenced the treatment by general bleeding, because he was a person of rather robust constitution, and on account of his dropsy having originated in cold. In persons who are able to bear bleeding, and where the disease has commenced in an acute form, you

may often commence the treatment of dropsy by a single bleeding with great advantage, even though there be no fever or local inflammation present.

We next prescribe an aperient injection, to be followed by a vapour bath. I then, by way of trial, gave him an electuary containing some diaphoretic medicines, and found that it acted well on the skin, and that sweating could be easily induced. This furnished me with a key to the after treatment. Whenever you find that sweating can be easily brought on in dropsical cases, you should obey the hint given by nature. You should not, under such circumstances, have recourse to mercury, or hydragogue purgatives, or diuretics; you are to open the passage which nature has pointed out—you are to encourage diaphoresis, and you may rely upon it, that you will in this way effect an easier, safer, and more permanent cure than you could by any of the various modes employed for similar purposes.

We therefore gave this man a powder, containing four grains of Dover's powder and five of nitrate of potash, three times a day. The Dover's powder is tempered by combining it with nitrate of potash, which is an antiphlogistic, and prevents the former from exercising a heating effect on the system. Having continued these powders for seven or eight days, we commenced the exhibition of opium, in doses of half a grain four times a day, to be increased after a few days to half a grain every fourth hour. Under the use of vapour baths used daily, and opium to the amount of three grains in the twenty-four hours, the man has improved wonderfully, and the dropsical swelling is fast subsiding. Opium has here, you may have remarked, produced no bad effects. The tongue is neither dry nor furred, and it has not any of that appearance which is observed in persons who are in the habit of taking opium; his appetite is unimpaired, his bowels regular, and his strength undiminished.

Now, why did I give opium in this case? The more advanced students will perceive that I have treated it nearly in the same way as I treat cases of diabetes. There seems to be an analogy between chronic dropsy and diabetes, and experience has proved to me that this mode of treatment is most likely to be attended with success. I shall not dwell on this point at present, but shall content myself with observing, that opium and other diaphoretics increase strength, remove the dropsical swelling, diminish the quantity of albumen in the urine, and bring on convalescence without producing any bad effects on the head or digestive system. I am anxious that you should attend to this case, and watch the result; for the treatment is quite different from that employed by others. I say this without meaning to claim any originality; but I may be permitted to say that it is a mode differing very much from those generally pursued. It cannot be used in cases where fever or local inflammation is present; but when the local and general excitement has been subdued, or when the case is chronic, and unaccompanied by quick pulse, or any symptoms of visceral inflammation, it may be employed with safety and advantage.

The second case is that of the patient Matthew Gray, a man of middle age, and rather robust constitution. On admission, he stated that he had been dropsical for about twelve days, and complained of cough, dyspnoea, constriction of chest, and feverish symptoms. His cough was hard, short, and incessant, preventing sleep, and increased by every attempt at full inspiration. He had general wheezing, much oppression about the chest, and scanty expectoration of frothy mucus. His pulse was 84, soft and rather weak: he complained of nausea and loss of appetite, and had cedema of the lower extremities. On

examining the chest, I found it sound clear on percussion, and that the physical signs present were those of bronchitis passing into the stage of super-secretion. In addition to this, there were symptoms of engorgement in the lower and posterior parts of the lung.

Here, then, we had a case of dropsy supervening on acute bronchitis. I therefore ordered him to be blooded immediately, and afterwards to have cupping glasses applied over the congested part of the lung. The local abstraction of blood was followed by remarkably good effects; it relieved the cough and constriction of chest, and diminished materially the pulmonary congestion. I next prescribed the following mixture, of which he was directed to take one tablespoonful every hour:—

℞ Misturæ Amygdalarum, fʒxij ;
Antimonii Tartarizati, granum ;
Nitratis Potassæ, ʒij ;
Tincturæ Hyoscyami, fʒiss. ;
Tincturæ Digitalis, fʒss. Misce.

A mixture like this is well adapted for such a case; it removes the febrile condition of the system, and by its demulcent and sedative properties allays the cough and bronchitic irritation, at the same time that it determines to the kidneys. Those medicines which are termed demulcent are frequently of great value in the treatment of bronchitis; you will often derive more benefit from gum arabic, spermaceti, almond emulsion, and the like, than from any other class of remedies. In the present case we combined them with sedatives and narcotics; and as the remedies prescribed under such circumstances should be antiphlogistic, we added a grain of tartar emetic and two drachms of nitrate of potash.

I have already spoken of the powerful antiphlogistic properties of a combination of tartar emetic and nitre, and dwelt on the benefits derived from it in many forms of inflammatory disease; so that it is unnecessary for me to say anything at present on the subject. It is obvious to all that the tinctures were added on account of their sedative and narcotic properties, tending to remove irritation and induce sleep, of the want of which the patient complained. But you may ask me why I did not order opium: simply because the disease was in its acute stage, and at a period when opium is apt to produce excitement of the system, and aggravation of the local symptoms. Instead of opium I gave hyoscyamus, which neither increases heat, produces headache, nor checks expectoration; and to this was added digitalis, a sedative possessed of considerable antiphlogistic properties. Of all the sedatives, digitalis may be given with the greatest safety in cases where antiphlogistic treatment is required.

It is unnecessary for me to follow up this case through all its details. It will be sufficient to state that, by gradually changing the nature of the treatment as inflammation declined, and particularly by the proper employment of powerful purgatives, I have succeeded in producing a rapid amendment in his symptoms. It may, however, be necessary to explain why I used purgatives, and in what way they were exhibited. In cases where extensive bronchitis has given rise to pulmonary engorgement and dropsy, when you have relieved the acute symptoms by bleeding, leeching, or cupping, and other antiphlogistic means, and when there only remains some wheezing, oppression of the chest, and rather copious expectoration, you will often effect a vast deal of good by the judicious employment of purgatives. You will clear the chest,

relieve the breathing, and diminish the dropsical effusion. In the present instance the patient took the following bolus :—

R. Pulveris Jalapæ,
Pulveris Rhei,
Pulveris Scammonii, ʒʒ, gr. v.
Elaterii, gr. ss.
Bitartratis Potassæ,
Sulphatis Potassæ, āā, ʒss.
Syrupi Zingiberis, quantum sufficit ut fiat bolus.

This acted powerfully, and its operation was followed by marked diminution of the pulmonary engorgement and dropsical swelling. I have frequently endeavoured to impress upon the class the truth of an observation made by Dr. Paris, that in the exhibition of remedies much better effects are obtained by combining several analogous remedies in small quantities, than by giving a single one in a large dose. By combining substances which are of the same nature, that is to say, which are individually capable of exerting the same effect on the system, we are capable of producing more decided effects, even though these substances be given in diminished quantity, than if we prescribed any one ingredient of the combination in a full dose.

I refer to this general principle in order to explain why I had recourse to so many different medicines, instead of employing a single powerful ingredient in considerable quantity. It explains why, instead of giving at once fifteen grains of the powder of jalap, I gave five grains of jalap, five of rhubarb, and five of scammony, and added to these half a grain of elaterium and a small quantity of cream of tartar and sulphate of potash. With respect to elaterium, I may observe that it has been strongly recommended in those cases of dropsy where there is no irritation of the digestive system present. Its action on the intestinal tube is very energetic, and from the quantity of watery secretion which it generally brings away, it is of great utility in removing anasarca swellings.

These are the principal observations which I have to offer with respect to this case. I may mention that, as the patient complained much of restlessness, we prescribed half a grain of morphia, to be taken at bed-time. This succeeded in producing sleep, a most important point in the treatment of all acute affections. We have now omitted the use of the more powerful remedies, and have prescribed to-day a decoction of Iceland moss with tincture of opium, to act as a pectoral demulcent, and he has been allowed chicken-broth and jelly. He is going on at present in a very satisfactory way, but it will be necessary to watch him carefully during his convalescence, and obviate the occurrence of a relapse. If discharged at present, and before convalescence is perfectly established, he would in all probability relapse, and soon become much worse than ever. Hence I intend to keep him here for a month or six weeks.

As long as I have been attached to public hospitals, I have made it a fixed rule, in all cases where a cure was possible, to keep the patient until it was confirmed. Whenever I was obliged, under the pressure of urgent necessity, to dismiss a case before healthy action was completely re-established, or whenever patients left the hospital prematurely of their own accord, I have observed that such persons, particularly if placed in the lower ranks of life, and subject to the numberless accidents and exposures of poverty, almost invariably returned in a far worse condition than before. It is 'much better,

though perhaps it does not make so striking an appearance in hospital returns, that a certain number of patients should receive all the benefits derivable from such institutions, than that a greater number should pass through them in the year, and be hurried out of them in a state of imperfect convalescence. This observation particularly applies to fever hospitals, and is, I fear, too little attended to in this city. Certain I am that a vast number of the cases of incurable pulmonary and intestinal disease which are admitted annually into the Meath Hospital, have had their origin during the state of debility in which the patients were when dismissed from a fever hospital.

Improper diet, imperfect clothing, bad lodging, damp rooms, are borne by the constitutions of the poor with comparative impunity as long as they are in a state of health ; but not so when they are debilitated by a recent attack of fever, treated or maltreated by active remedies, and dismissed from hospital in a week or ten days after the crisis has taken place. How injurious to persons so debilitated the change from the warmth and comfort of an hospital to the cold and desolation of a damp garret or cellar. Add to this, that many of them, at the time of their discharge, still evidently bear the marks of mercurial action in their system, and many have their hair very short, in consequence of the head having been shaved during their illness. Hence, many catch cold that affects the ears or eyes ; many become deaf, and not a few get sore eyes ; while the number of those in whom the sequelæ of the fever rapidly induce incurable chronic diseases is so great, that were the balance of the account to be fairly struck out, it would be found fever hospitals do less good to the public health than is generally imagined.

There is in the male chronic ward a patient named Garret Kane, to whose case I shall for a few moments draw your attention. This man is about forty-five, and, like most of his countrymen who have been addicted to whiskey, he is beginning to show the fatal effects of intemperance. He had been ill for several months before he came into the hospital, and is at present labouring under general anasarca, affecting the chest, upper and lower extremities, accompanied by an accumulation of fluid, but not very extensive, in the cavity of the peritoneum. I shall confine myself in this case to an explanation of the reasons which have induced me to select the plan of treatment I have adopted. In the first place, it is a case of chronic dropsy ; secondly, it is unattended with fever ; thirdly, it is a case in which mercury has been used with some temporary relief, but the disease returned afterwards in a worse form ; lastly, it is dropsy accompanied by obstinate diarrhoea, and therefore contra-indicating the use of purgatives or even diuretics, for you are aware that the whole class of diuretic medicines acts more or less on the intestinal canal. I may mention here, acetate and nitrate of potash, turpentine, colchicum, squill, and many other remedies of the same kind. All diuretics act either as purgatives, or they have a stimulant and irritating effect on the bowels.

This patient has bowel complaint, and therefore we are prevented from giving diuretics or purgatives ; and the absence of inflammatory symptoms precludes the employment of the lancet or cupping glasses. You perceive that our field for practice is extremely limited ; we dare not bleed, cup, purge, give mercury, or diuretics ; the nature of the case contra-indicates the use of all these remedies, and hence we are deprived of the power of using the most energetic agents employed in the treatment of dropsy. What then is to be done ? Having observed that the man's appetite and thirst are very great, and that his urine contains a large quantity of albumen, that he has no fever and no symptoms of local inflammation, I decided at once on trying the ef-

ficacy of Dover's powder in doses of a scruple in the day, divided into four pills, and gradually increased until it amounts to half a drachm, or two scruples, in the twenty-four hours. I have already remarked to you that a species of analogy exists between cases of this kind and cases of diabetes; in both there is the same tendency in the blood to part with its watery constituents, in both the same inordinate thirst and craving appetite are observed, and in both the same deposition of animal matter in the urine. The principal difference between them is, that in one case the watery fluid is effused into the areolar substance and peritoneal cavity, while in the other it is eliminated from the system through the medium of the kidneys. It was this analogy which led me to adopt Dover's powder in the treatment of this man's case.

In the patient, Kane, a small sore was formed on one of the lower extremities, perforating the skin and areolar substance to the depth of two or three lines; through this aperture a great deal of the anasarcaous fluid has drained and still continues to flow off. This is a very fortunate circumstance, as it will tend to prevent any excessive accumulation in the areolar membrane. Previous to its occurrence I had ordered the scrotum and prepuce, which were enormously distended, to be punctured with a needle. The best mode of doing this is to prick the part quickly, so as to give as little pain as possible; the point of the needle should merely penetrate the true skin; the punctures should vary in number from twenty to fifty or sixty, according to the size of the part and the extent of the effusion, and they should be at least half an inch asunder.

By observing these rules you will succeed in evacuating the water without running the risk of exciting erysipelas, which in such cases frequently leads to disastrous consequences. Puncturing with a lancet is not so good as with a needle, it is much more apt to excite irritation in the parts, and thus lead to the supervention of erysipelatous inflammation. The judicious application of acupuncture, in cases of chronic dropsy, often accomplishes a great deal, for when the external anasarcaous œdema is thus drained away, the fluid in the peritoneal cavity is more rapidly absorbed; in some cases, indeed, the good effects of external drainage on the ascites are so rapid, that we are almost tempted to believe that some direct communication may exist between the subcutaneous tissue and the apparently shut sac of the peritoneum. Be this as it may, the good effects in some cases are as decisive as if such a communication existed. This phenomenon countenances the hypothesis of the possibility of fluids percolating through living membranes.

The following case is a singular example of what I must term *spontaneous cure of chronic ascites* :—

Some years ago, I was first consulted by my colleague, Dr. Porter, concerning a very remarkable case of ascites. The patient, a lady residing in the neighbourhood of Dublin, had then laboured under the disease for eight years. The abdomen was enormously enlarged, exceeding far in size that of a woman in the ninth month of pregnancy. It was tense, and on percussion afforded a most evident fluctuation. There was no pain felt in any part of the belly, nor was it at all tender on pressure. The lady's general health was good, and she complained of nothing except the deformity and unwieldiness produced by so great an accumulation of fluid within the cavity of the peritoneum.

This accumulation had taken place very slowly indeed, nine years having elapsed since its first commencement, during which time its increase had

been equally progressive, that is, it did not appear to accumulate faster at one period than at another. Under these circumstances it was not judged right to attempt anything for her relief. Being employed as medical attendant by other members of the family, I had, during the succeeding years, frequent opportunities of observing the state of the abdomen, which latterly did not appear to increase in size, and for the last year was evidently stationary.

So matters continued until thirteen years from the first origin of the disease, when I was called to visit this lady under the following circumstances. The catamenia, which had never been irregular, but constantly scanty, suddenly became profuse and much more frequent, returning every fourteen or sixteen days, and lasting six or seven. This was soon followed by a most copious discharge of urine, and a rapid diminution in the size of the belly. The diuresis indeed was so great, and the decrease of the tumefaction so sudden, that much alarm was naturally excited in the minds of herself and family. She complained much of debility, to remedy which I allowed a free use of wine negus, and applied compression to the abdomen by means of properly adjusted swathing. In less than a week, profuse night sweats commenced, which still further accelerated the disappearance of the ascites, and in about a fortnight from the time the diuresis began there was no vestige of the ascites, and the integuments of the abdomen, relieved from their previous state of enormous distention, hung pendulous, as she herself expressed it, like an empty purse. The diuresis and sweating now gradually ceased, the catamenia became normal, and a nutritious diet speedily restored her strength, and she reappeared in society, to the astonishment of all her acquaintance, with an extremely delicate and slender waist.

The connexion which this case exhibits between the catamenial discharge and the peritoneal secretion is interesting in many points of view too obvious to be noticed.

Let me next call your attention to the occurrence of convulsions in cases of chronic dropsy. Convulsions in hydrocephalus have long attracted the attention of the profession. Those I am about to describe appear to possess features of a very different character. I have now witnessed three cases where they have suddenly and unexpectedly supervened. The first was that of a gentleman about sixty years of age, healthy, but slender, and extremely temperate in his habits; without any apparent cause, he became gradually anasarcaous; the œdema commenced in his feet, and after some weeks extended to the integuments of the abdomen. He had some cough and copious expectoration at the period of this attack; his strength visibly declined, and his urine became scanty, but there was no fever. This state had continued for a month, and he did not seem to improve under the use of mild diuretic remedies, when he was attacked in the middle of the night with very severe convulsions, attended with unconsciousness and turgescence of the face, and many symptoms resembling an attack of epilepsy. When the fit subsided the skin was found to be hot, his pulse quick, and he complained of headache and great restlessness and jactitation. Purgative medicines were exhibited, cooling lotions applied to the head, and a copious flow of blood obtained from the arms by means of leeches. For three days he had many returns of the fits with various degrees of severity. They at length ceased, the fever gradually subsided, the secretion of urine was augmented, and the dropsical swellings rapidly disappeared. His convalescence was complete, and his health has since been unimpaired.

The next case was that of a young gentleman aged about seventeen, who had been for several months affected with anasarca and ascites, and whom I was requested to visit by Mr. Young, of Chatham-street. There was not the slightest vascular excitement, nor could we detect any organic disease, either in the chest or abdomen, with the exception of some occasional tenderness and tympanitis in the region of the stomach. His urine contained a very large proportion of albumen. I need not detail the remedies which we employed, suffice it to say that *cold effusion*, *acupuncture*, and a *meat diet* were all successively tried and failed to remove the swellings. His general health did not appear to suffer much, and his appetite continued good. The disease had continued nearly six months, when he was unexpectedly seized with somnolence, ending in a most violent fit of convulsions, closely resembling an epileptic seizure. This lasted for nearly half an hour with more or less violence, and was accompanied by quick pulse and well-marked symptoms of fever, together with determination of blood to the head. During the two following days he had many returns of the convulsions, and at times he lay in a stupid and most insensible state; but these cerebral symptoms then subsided and left no trace behind. The fever, however, continued, and our patient was next attacked with symptoms of violent abdominal inflammation, which also yielded, but was soon succeeded by effusion of serous fluid into both pleural cavities. This effusion took place with great rapidity, and in the course of twenty-four hours our patient died asphyxiated.

The next case I shall give in the words of Dr. Dwyer, who witnessed its progress. I did not see it myself, but Dr. Dwyer's statement may be relied upon as accurate.

"— Moran, a labourer, aged 40, of robust habit, laboured under anasarca and ascites, with supposed enlargement of the liver. His sufferings, when I first saw him, were aggravated by some dyspnoea. After purgative and diuretic medicines had been persevered in for some time without relief, he was removed to hospital, whence, after being put three times under the influence of mercury, he was dismissed. Shortly after he relapsed, in consequence of exposure to wet and cold, when I was again asked to visit him, and found that all the symptoms had returned with greater violence than before; fearing more mercury, he refused to return to hospital, and consequently I myself attended him at his own room. I administered various hydragogue cathartics and diuretics, and during the following month I more than once succeeded in producing a very evident diminution of the dropsical swellings.

"The improvement, however, never lasted long, and I had begun to consider the case as hopeless, when I was summoned to visit him in great haste, and found him in a fit. He was lying on his back, his face somewhat congested, and the pupils dilated; the pulse very slow and soft; breathing stertorous. His friends said that he had not had any convulsions during the seizure. As the fit had come on suddenly, I considered that it was a case of serous apoplexy, arising from rapid effusions into the ventricles of the brain, and consequently I regarded a fatal termination as almost inevitable. Turpentine injections were administered, and blisters were applied to his scalp. On the following day, I was agreeably surprised at finding that he had recovered his consciousness, although he could not speak. In a few days his speech gradually returned, and he was in nearly the same state as before the fit.

"A fortnight afterwards he was again seized in nearly the same way, except that he had now some convulsive motions of the muscles of the face and

extremities, and the paroxysm was more severe. I now considered the case as perfectly hopeless, never expecting him to recover from the state of insensibility in which I found him. The same means of relief were, nevertheless, applied, and were succeeded by a similar amendment. The coma abated, his pulse became quicker, and in the course of two days he was restored to his former state, in everything except the loss of speech, which continued, and a diminution of muscular power, almost amounting to paralysis of the right side. He remained without any material alteration in the symptoms for some time, occasionally relapsing into insensibility, and again recovering, so as to recognise his wife. In the mean time his speech improved, and the paralysis of the right side apparently diminished—a change which could not be attributed to medicine, for he had long since refused to take any.

“The blister that had, in the first attack, been applied to the scalp and nape of the neck, had produced suppuration, which I ordered them to keep up by means of proper applications, and I took my leave, weary of an attendance where both the patient and his friends seemed to have lost all confidence in the resources of medicine. I left, however, some diuretic pills and a diuretic mixture in his room, and directed his wife to inform me if anything particular occurred. I did not hear from them for a week, when, being anxious to ascertain how the case had terminated, I paid a visit, firmly convinced that I should hear of his death, when, what was my astonishment to see him jump off a stool, place himself, arms a-kimbo, before me, and to my timid inquiry, ‘What news?’ answer, ‘I am as stout a man now as you.’ I very naturally concluded that insanity had suddenly been substituted for dropsy; but I soon found that he was perfectly in his senses. He told me that he had taken my pills and mixture in double doses, and that a most profuse diuresis had supervened, rapidly followed by subsidence of the dropsy. He now complained of nothing but weakness, and eventually recovered perfectly, and has continued for the last year and a half his occupation as a carter.”

The fourth case of this affection is an excellent example of the efficacy of the cold affusion in convulsions occurring in the course of dropsy. No application is more common than that of cold to the head in disease of the brain; but the use of cold affusion in the convulsions of children and young persons has not attracted the attention it deserves; at least those who have witnessed the progress of such cases, under the care of the most eminent practitioners in Dublin, say they have seldom seen this remedy applied. I have indeed reason to believe that its utility was known to a few, but it has never been generally adopted; and I myself, for the first time, saw it practised by others, in the case of a child two years old, successfully treated in this manner by Dr. Ireland.

The following is the most remarkable of those which came under my immediate observation:—

I was sent for at the desire of two professional friends to see a young gentleman, nine years of age, in whom convalescence, from a severe attack of scarlatina, had been interrupted, at first by anasarca, and afterwards by convulsions. The latter had come on quite suddenly at six o'clock in the morning, three hours before my visit, and the fits had been so violent, and succeeded each other so rapidly, that at nine o'clock he appeared to be moribund; his eyes were distorted, void of expression, and fixed; face cadaverous; extremities cold; his pulse very feeble, and so rapid, 145—150, that it could not be counted with any degree of precision. In addition, he appeared to be nearly destitute of muscular power; and in the interval between the fits was un-

able to speak, while a loud tracheal rale seemed to announce the near approach of death.

As I have detailed the symptoms of the case with the most scrupulous fidelity, and without the least exaggeration, I need scarcely add that our patient's state appeared utterly hopeless. Our first step was to place him in the arms of a strong nursetender, who maintained him, as nearly as possible, in the sitting posture; our object in this was to relieve the lungs, and diminish the cerebral congestion. Those who have watched over the dying are aware that the final struggle may be often much protracted by frequently changing the patient's position in bed, and particularly by avoiding the horizontal posture. This mode of proceeding, by preventing the gravitation of blood to any one part of the lungs, and by counteracting the accumulation of mucus in any particular portion of the bronchial tubes, causes both to remain for a longer time pervious to the air, and favours the last efforts of the respiratory apparatus.

We next proceeded to pour a small stream of cold water from a kettle on his head: the effects were extremely satisfactory; for in a short time the eyes assumed a more natural appearance, and lost the spasmodic fixedness, while the pulse became more and more distinct, and diminished in frequency; in short, the violence of the fit soon subsided, he was able to expectorate the mucus which had clogged the larger air passages, and had caused the *rattles*,* and in the course of half an hour a very marked improvement was perceptible, the patient being then able to speak and swallow. The convulsions, however, returned several times during the ensuing day, but at each occurrence their duration was lessened, and their violence diminished by the cold affusion. Sitting by the bed of this patient, I more than once was able to predict the immediate approach of the fit, by means of watching the pulsation of the carotids, which then became much more frequent and stronger. This observation, in connexion with the fact, that the pulse became weaker and more indistinct at that very moment, suggests many interesting considerations concerning local determinations of blood.

It is almost unnecessary to remark, that the time we had so unexpectedly gained was not spent in inaction, and that we immediately had recourse to various other active remedies, such as leeching the neck, purgative injections, and mercurials, administered both internally and externally, with a view of affecting the mouth rapidly. In addition to the modes of applying mercury usually employed, I can recommend the application of the ointment to the arm-pits; this alone will frequently affect the mouth in a few days. The motions of the patient's arms here perform the office of friction, and this part of the skin seems to possess very active absorbing as well as exhaling powers, and is likewise more protected from the contact of the clothes, &c., so that the ointment is less easily wiped off and wasted.

With regard to local detraction of blood where there is determination to the head, experience has taught me that in no case ought we to apply leeches to the temples. This is a very important observation, and applies to the treatment of various cerebral affections, such as occur in fever, apoplexy, paralysis, hydrocephalus, &c., &c. Leeching the temples in such cases not unfrequently aggravates the cerebral symptoms, whereas, if the leeches are applied behind the ear, or what is still better, along one side of the neck, this untoward event will be avoided. I say along one side of the neck, because we are thus enabled

* No bronchitis or pectoral affection was present, and consequently the *tracheal rale* (rattles) was of the most ominous import.

to promote the flow of blood when the leeches fall off, with less annoyance to the patient than if leeches had been applied at both sides.

A most instructive monograph might be written on the application of cold to the head in various diseases; at present, much mischief frequently arises from practitioners being unacquainted with the different degrees of cold suitable to different states of the cerebral organ, and the different methods of conducting its application, so as to produce relief. In one case of fever I saw violent mania immediately follow the injudicious application of ice to the head; and in another, much difficulty was experienced in saving the life of a young person in whom a collapse of the system, without relief of the local affection, had been induced by the too copious and continued application of cold water to the head.*

Where very violent pain in the head occurs in fever, the *cold dashing* with water from a height, as recommended by Dr. Smith in his excellent treatise, is often a most valuable remedy; but in convulsive diseases like that now described, this application is too violent; in such cases the stream of water should be small, not poured from a height, and should be discontinued the moment the fit ceases, to be again renewed on the approach of another paroxysm. I am informed by an eminent practitioner of this city, that he twice witnessed fatal convulsions follow the injudicious use of cold affusion in mania. The efficacy of cold affusion in delirium tremens, in asphyxia, in cases of over doses of prussic acid, &c., proves that it is too powerful an agent to be indiscriminately applied.

The young gentleman, whose case occasioned the foregoing remarks, recovered in the course of a few weeks, and is now perfectly well. I was not aware when I first published this case that in Ritcher's *Specielle Therapie*, that excellent practical physician, Dr. Heim of Berlin, had used the application of a small stream of ice-cold water to the head with great success, both in the convulsions and coma of hydrocephalus. This application is persevered in as long as the insensibility or fits continue, and it is re-applied whenever they return. Cases apparently hopeless have been thus restored to health. He observes that this treatment requires great perseverance and attention, for the child must be held by an assistant whenever the cold water is applied, and its neck and shoulders must be protected by means of an oiled silk covering, as the application of the cold must be strictly limited to the head, while the warmth of the rest of the body is carefully kept up.

I am not aware that this sudden and unexpected occurrence of violent cerebral disease had been described by authors on dropsy previously to my noticing it. They remark, indeed, that sometimes an attack of apoplexy suddenly carries off the patient, and they attribute, probably with justice, such an event to a sudden effusion of serum into the ventricles of the brain. Instances of this nature I have witnessed frequently. The cases I have related appear to me to depend upon a different cause, viz., a determination of blood to the head. In Dr. Dwyer's patient, the congestion evidently terminated in effusion of blood, causing paralysis of the opposite side of the body.

* In a work lately published—*Travels in Kashmir*: by G. T. Vigne,—we find the following curious account of a custom that prevails at Simla, and which shows remarkably the influence of cold on the cerebral functions:—"No one visits Simla without descending to Annadale, to pay a rupi for seeing a mother put her child to sleep, by laying it so that a small stream of water is allowed to pour for two or three hours upon the back of its head. The natives say that it is a healthy practice; that their fathers did so before them; and they still continue to do so, although they admit that many of their children die under such treatment."—p. 29.

This occurrence, and the frequent return of the fits, prove that the disease did not depend upon mere effusion of serum. In the cases I myself saw the cerebral symptoms certainly arose from determination of blood to the head, and they were accompanied by febrile symptoms and an excited state of the general circulation.

The happy termination of three such cases out of four, shows that the occurrence of convulsions, coma, and loss of speech are by no means so fatal as has been supposed* in chronic dropsy. When such a state of things supervenes, it would almost appear that, if the patient be treated properly, his chances of recovery from the dropsy are rather increased than diminished. It is singular that the cerebral symptoms should have entirely disappeared in all the four cases, a fact which forms a striking contrast with the almost invariable fatality of convulsions when they supervene in jaundice, examples of which I gave you in a late lecture.

* "Tödliche Ziechen in der Wassersucht sind Schlatsucht und Aponie," says Richter.

DISEASES OF FEMALES.

LECTURE LVI.

PHLEBITIS.—PHLEGMASIA DOLENS.—METRITIS.—PUERPERAL MANIA.

AMONG the cases at present under treatment in our wards, that of Mary M'Quade particularly demands your attention. This poor woman was admitted a few days since labouring under an attack of fever, accompanied by considerable prostration, anxiety, and restlessness; in addition to these symptoms, she has a local affection of a very important nature; the right leg, as far as the knee, swelled to twice its natural size, and a large erysipela-tous blotch occupies the fore part of the foot, extending over the ankles on each side. The thigh also is increased in size as far as its upper third, so that the tumefaction embraces more than two-thirds of the whole extremity. There is a considerable degree of tension present, and the limb, particularly along the internal surface of the leg, is extremely tender, the soreness being so great over the course of the veins and lymphatics, that she could not bear the slightest touch.

Here we had a swelling of the lower extremity depending on an inflammatory condition of the part, and the question is, in what tissue did it commence, and what are its characteristic features? Before we discuss this question, it may be proper to observe here that the disease had its origin from cold. When a patient is exposed to cold under unfavourable circumstances, local inflammation is generally the consequence, and it depends on a variety of causes, of what description the inflammation will be, and on what particular part it will fall. Where the lower extremities are the parts chiefly exposed, inflammation of the areolar membrane of the leg is apt to ensue; or it may attack the veins, as in the case before us, constituting phlebitis; or the lymphatics may be primarily and almost exclusively engaged.

In a few cases, inflammation attacks the arteries of the limb, as in a case which has been published by Dr. Stokes and myself in the *Dublin Hospital Reports*, where a person, after exposure of the lower extremities to cold, got an attack of arteritis, terminating in mortification of the limb and death. Exposure of the lower extremities to cold gives rise to phlebitis much oftener than to arteritis. Dr. Stokes and I have published a striking case where inflammation of the veins of the leg was produced by this cause. You will find this case referred to by Dr. Lee, in the excellent article *Phlegmasia Dolens*, in the *Cyclopaedia of Practical Medicine*.

You perceive, then, that painful swelling of the lower extremities originating in cold may consist either in the whole areolar membrane being engaged, or it may arise from inflammation of the lymphatics of the veins, or of the arteries. Now, when inflammation attacks in the first instance the subcutaneous tissue of the lower extremities, it frequently in its progress involves the lymphatic and venous tissues; the arterial very seldom, for the arteries lie deep and have no connexion with the subcutaneous areolar membrane. There

is, however, nothing more common than that inflammation commencing in this way should terminate in phlebitis, and disease of the lymphatics. This appears to be the nature of phlegmasia dolens, that peculiar inflammation which generally attacks one, and seldom both of the lower extremities ; which is most commonly observed in females ; and which is characterized by swelling, not pitting, on pressure, by excessive cutaneous tenderness, and by a remarkable whiteness of the skin of the affected limb, accompanied by increased heat, and more or less lesion of the locomotive function. These are the principal symptoms which characterize phlegmasia dolens. The inflammatory condition of the limb causes an exudation of fluid into the areolar membrane, consisting partly of serum and partly of lymph ; this produces swelling which is of a firm and rather unyielding character, not pitting on pressure like that which results from anasarca. After some time, the inflammation extends to the neighbouring tissues, and attacks the veins and lymphatics, a circumstance which has led many persons, among others Dr. Lee, to believe that phlegmasia dolens arises primarily from phlebitis. This, however, is not borne out by the fact, nor is it true that it consists in inflammation of the lymphatics, as others have suggested ; it may engage both the lymphatic and venous tissues, but it differs in many points from pure phlebitis, or true inflammation of the lymphatics.

In the case before us, it would appear that the inflammation commenced primarily in the veins, and by a careful examination you will be able to discover some essential points of difference between the disease and phlegmasia dolens. There is a good deal of soreness present in this case, but the exquisite neuralgic tenderness of phlegmasia dolens is wanting. Again, the shining appearance of phlegmasia dolens is absent, and the colour differs greatly from the dead whiteness observed in that disease. The tenderness also is here more localized, being chiefly complained of on the inside of the limb, and along the course of the veins and lymphatics. On the other hand, it may be observed that these affections have many symptoms in common, and you may have remarked that here, as in phlegmasia dolens, the locomotive power of the limb is considerably diminished. This, however, has been remedied to a certain extent by the curative means employed, and the patient is now able to raise up the whole limb, and bend the leg on the thigh.

Now, whence arises this loss of power so often witnessed in cases of phlegmasia dolens, and phlebitis, and inflammation of the subcutaneous areolar tissue of the lower extremities ? I am inclined to think it depends on a morbid impression made on the ultimate ramifications of the sentient nerves, which is propagated along the larger trunk to the spinal cord, and from thence by a reflex course is brought to bear and react on the muscular nerves of the limb. In my remarks on paraplegia, I have spoken of this matter at large, and given several instances of loss of power in a limb, produced by impressions made on the extremities of its cutaneous nerves ; and such appears to be the lesion of the locomotive power observed so frequently in cases of phlebitis and phlegmasia dolens. In many cases of paralysis, we find the first stage of the disease attended with an increased sensibility of the nerves of the part affected, tending to show that the primary source of the disease consists in an impression made on the sentient extremities of the nerves ; and there is nothing more common in such cases than to find the loss of the motor power accompanied by deranged sensation. In phlegmasia dolens and phlebitis we have great cutaneous tenderness, and this is very rapidly followed by more or less diminution of the muscular power of the limb.

I shall now refer briefly to the curative means employed in this case, observing that it has this in common with many cases of phlegmasia dolens, viz., the inflammation has engaged in succession the areolar membrane, veins, and lymphatics. When the lymphatics are attacked with inflammation, they become swelled, and have a knotty cord-like feel, and this condition is most commonly attended with the appearance of erysipelatous patches on various parts of the limb, over the place where a number of lymphatics are simultaneously engaged. This appears to be the case in the present instance, and it explains the occurrence of the erysipelatous blush which covers the instep and ankle. I need not tell you that the appearance of erysipelas over any part of a limb so circumstanced strongly demands our attention, as it might be an indication of the seat of an injury which may have given rise to the disease. In this case, however, it was the product of the disease, and had no connexion with its origin.

The treatment of a case of this description cannot be conducted on strict antiphlogistic principles. The fever which accompanies venous inflammation is of a low typhoid character, and prostration sets in at a very early period. The intimate connexion of the venous system with the whole economy, the peculiar character of the inflammation affecting the venous tissues, and the rapid prostration of strength which ensues, are all circumstances which contraindicate general depletion. On the other hand, the best effects have been obtained by active local bleeding, and this appears to be so much the more necessary in cases of phlebitis, as the inflammation is apt to run very quickly into the suppurative stage. I therefore ordered forty leeches to be applied along the inside of the affected limb, directing the nurse to encourage the bleeding by warm fomentations. In addition to this, two ounces of mercurial ointment, combined with two drachms of the extract of belladonna, were spread on large pieces of lint, and applied over the limb after the leech-bites had ceased to bleed. That mercurial ointment thus applied has a tendency to subdue inflammation of a low erysipelatous character has been shown by the late Dr. McDowel, in an excellent paper published in the sixth volume of the *Dublin Medical Journal*.

To this we added the extract of belladonna, because the local inflammation was attended with hyper-sensibility of the limb, a condition over which belladonna is known to possess a remarkable influence. Dr. Lee, I should observe, does not appear aware of the great utility of narcotics in the painful swelling of the extremities after fever, or in true phlegmasia dolens. In both these diseases, together with active local depletion by means of the frequent application of leeches, we should employ anodyne ointments, and, above all, large doses of opium internally. Some patients in phlegmasia dolens, if the bowels be regulated, will bear and derive benefit from four, five, or even six grains of opium in the day; I speak of the second stage of the disease. The same observation applies with regard to wine, and to sulphate of quina. It is obvious that phlegmasia dolens consists of something besides mere inflammation; the pain is altogether different from that attending ordinary phlegmasiæ; it resembles more a general neuralgia of the extremities of the subcutaneous nerves. The internal treatment consisted in giving a few grains of hydrargyrum cum cretâ three times a day, to keep up a free state of the bowels, and with a view of gently affecting the system.

You may, perhaps, ask me to account for the great tumefaction of the limb observed in this case. It has been supposed by some persons that the whole swelling depends on the obstruction of the veins; but if inflammation was

entirely limited to the veins, the swelling could not be so extensive. It is true that if you produce artificial obstruction of any of the great veins, by placing a ligature on it, you cause, for the time, very considerable œdema of the limb. The obstruction to the passage of blood through an inflamed vein will necessarily give rise to a certain degree of swelling, but I am inclined to think that this is not the only source of the tumefaction; it would appear that in addition to the phlebitis we have the inflammatory process communicated to the neighbouring parts; the areolar tissue and probably the lymphatics become engaged, there is a copious effusion of serum and lymph, and to this the general increase in size of the limb is to be chiefly attributed.

With respect to the termination of phlebitis, I may remark that it generally ends in adhesion of the sides of the veins and obliteration of its cavity, so that when the patient recovers, the affected vein feels like a piece of whipcord lying under the skin. We had some patients here who had obliteration of this kind, and in one of them who died afterwards of fever, I found some of the smaller subcutaneous veins had become totally impervious through their whole extent, and resembled hard cords.

Let me now direct your attention to the case of Rebecca Howard, who came into hospital on the first of this month, eight days after her accouchement, with painful swelling of both lower extremities. From the history of her case it appears that three or four days after her confinement she got severe pain about the heel and inner ankle, accompanied by swelling, which commenced about the same situation, and extended rapidly up the thigh as far as the groin. A similar swelling appeared likewise in the other limb, but instead of commencing below, it appeared first in the upper third of the thigh, and afterwards spread downwards, attended with violent pain, apparently in the course of the great sciatic nerve. Along the course of the veins a number of hard cords, extremely tender to the touch, could be distinctly felt; the lymphatics, though somewhat tender also, did not seem to be so much engaged, and there was no inflammation of the glands of the groin.

Here we had a case of phlegmasia dolens, or, in other words, painful inflammatory œdema of the lower extremities, involving the skin, subcutaneous areolar tissue, veins, and lymphatics, more or less distinctly. I have already stated to you my opinion, that this affection does not necessarily depend on phlebitis; on the contrary, I think that in the majority of cases the disease commences in the subcutaneous areolar tissue, and afterwards extends to the veins and lymphatics. Observe the course of the inflammation in both limbs. In one it commences in the vicinity of the inner ankle, and extends up the thigh; in the other it is first observed in the upper part of the thigh, and spreads downwards. Now, where œdema is the consequence of phlebitis, or where it is artificially produced by tying or compressing one of the large venous trunks, it is always first observed in the lower part of the limb. You perceive, then, that those who explain the occurrence of phlegmasia dolens by referring it exclusively to phlebitis, are not able to account for it as commencing in the thigh and spreading downwards. But how much easier is the explanation, if we look upon it as a peculiar inflammation of the subcutaneous areolar membrane of the limb, involving in its progress, to a greater or lesser extent, the veins and lymphatics, and sometimes extending to the joints! From this view of the pathology of phlegmasia dolens, you can understand why the upper part of the thigh may become primarily affected, and that effusion may take place above before it occurs below.

So far with respect to the pathology of the disease : now with regard to treatment. In attempting to remove this inflammation, we are obliged to keep clear of any measures calculated to increase constitutional debility. This woman, though young, was of a delicate constitution ; and there is this peculiar difficulty in the treatment of diseases after parturition, that they occur at a time when the patient has been more or less debilitated by the efforts of labour and its consequences. Our object, therefore, was to reduce the local inflammation, at the same time that we endeavoured to support the woman's strength by a light and nutritious but not heating diet. We commenced with the application of leeches, to the number of ten, along the inside of each limb ; these we repeated to the same amount on the following day. In the application of leeches in cases of this kind, you must be guided by the circumstances of pain, tension, and swelling ; these are sometimes greater in one portion of the limb than in another, most frequently in the course of the veins ; but you should always take care to have them applied over those spots in which the inflammatory process seems to exist in the greatest intensity. Our next step was to open the bowels by means of purgative injections, to be repeated as occasion requires. In addition to this, I directed the limb to be gently rubbed with an ointment composed of one ounce of mercurial ointment, two ounces of lard, and three drachms of extract of belladonna. I have already dwelt so fully on the local, antiphlogistic, and narcotic effects of this composition, that it is unnecessary for me to say anything of it at present.

With respect to internal remedies, I ordered her to take five grains of Plummer's pill every night and morning ; but as this produced griping and a tendency to diarrhoea, we were obliged to change it for hydrargyrum cum cretâ, with Dover's powder. On the 24th (the fifth day of her treatment), her mouth became affected, and the pain along the sciatic nerve, as well as the general soreness of both extremities, decreased. I forgot to observe, that from the commencement we had given opiates freely ; indeed, this was one of the principal parts of our treatment. She first took the liquor of the muriate of opiorrhina, in doses of twenty drops three times a day : this we exchanged for opiate injections, when her bowels became irritable under the use of Plummer's pill. On the 24th there was a considerable improvement in her symptoms, as I have already stated ; but she was very weak : there was still considerable soreness of the extremities, and she complained of pain and tenderness in the right groin, showing that the lymphatics as well as the veins were engaged. I ordered the opiate enema to be repeated, and allowed her the free use of chicken-broth, rice, and a small quantity of wine. On the 25th she was directed to take a pill containing half a grain of opium every third hour. Next day the report states that she finds herself much better, that her bowels are quite natural, that she feels no pain in the lower extremities, except when pressed or moved, and that she had regained the power of her limbs. Two days afterwards she was able to stand, and at present she is so far recovered that I intend to dismiss her to-morrow.

The treatment of cases of this description involves some very curious and important considerations. With the exception of leeching, the treatment which we employed in this case cannot be called antiphlogistic ; for through the whole course of the disease we gave opium freely, allowed her nutritious diet, and after the first four or five days the use of wine. This shows that, in diseases called inflammatory, no general rule of treatment can be laid down, and that our practice must vary in the most remarkable manner, according to circumstances. Had I treated this inflammation by leeching, low diet, pur-

gatives, and antimonial, it is very probable she would have sunk. But while we were endeavouring to subdue local inflammation by leeching and mercurial ointment, we supported the constitution by a proper diet, nourishing but not heating, and afterwards by the use of wine. At the same time we gave opium in free and repeated doses, with the view of diminishing pain and irritation, and procuring sleep—a most important matter in the treatment of all acute affections combined with irritability. We also gave mercury internally, because it has been found extremely valuable in such cases, when given rather as an alterative than with the view of rapidly and violently affecting the system. Under this plan of treatment her convalescence has been very rapid. It is a plan abundantly simple, but one which I can recommend to you with confidence.

With respect to the after treatment of this case, I have merely to observe that as soon as the hyper-sensibility of the limbs became diminished, I ordered them to be rubbed diligently twice a-day with warm olive oil. How this acts I cannot distinctly say; but it appears to diminish tension, to promote absorption, and to increase the pliability of the limbs. Latterly, we have given up this, and had recourse to dry friction and bandages. At present she is taking, three times a-day, a mild tonic draught, composed of tincture of orange peel, half a drachm; tincture of hops, twenty minims; carbonate of soda, five grains; water, an ounce.

You have recently witnessed a singular case in the hospital of a woman labouring under phlegmasia dolens, in whom the disease suddenly attacked the eye, and destroyed it in a short space of time—disorganizing it rapidly without the supervention of any redness during this destructive process. I never had any hopes of this woman's recovery, because, in addition to the phlegmasia dolens, she had fever and inflammation of the mucous membrane of the intestinal canal and lungs. She laboured under fever, vomiting, and irritability of the stomach; she had a severe diarrhoea, tympanitis, and a swollen state of the abdomen, with turgescence of the veins on its surface, so as to bear some resemblance to dropsy. She had a constant harassing bronchitic cough; in fact, a combination of unfavorable symptoms, which rendered her case hopeless; and in spite of all the usual remedies, stupes, leeching, blisters, &c., she grew progressively worse, and sank under her complicated load of disease.

I shall not detain you by a detail of her case, and a recapitulation of the therapeutic agents employed in endeavouring to arrest her complaint, but shall proceed to make some observations with respect to the phenomena observed by Mr. Hudson on dissection:—On opening the thorax, there was no serum discovered in the pleural cavities, but there was a considerable quantity in the pericardium. The left pleura was adherent at all points. The lungs were healthy, with the exception of some œdema posteriorly; the bronchi contained a quantity of sanguinolent frothy fluid, but in other respects presented a natural appearance. The right side of the heart contained fibrine, the left some coagulated blood; the valves were healthy. The stomach and intestines presented no sanguineous engorgement, and were apparently free from disease; the liver was large and much congested; the spleen large, soft, and almost pulpy; the kidneys pale, with patches of white degeneration. The uterus exhibited nothing remarkable, except the loaded state of the spermatic veins, which were very large and tortuous: the veins of the mesentery were also congested. The vena cava inferior was healthy down as far as its juncture with the renal vein, below which it was thick-

ened, and filled with a fibrinous substance, varying in its consistence, and adhering to the inner coat of the vessel.

On laying bare the femoral vein, the subcutaneous areolar tissue was found to be infiltrated with serum, the granules of fat much firmer and more distinct than natural, and the intervening areolar membrane thickened and opaque. The superficial fascia was dense, white, and of a flaky appearance, the lymphatic glands in the groin were large, full of serum, and closely matted together by condensed areolar tissue. It was extremely difficult to detach the iliac, femoral, and saphena veins, in consequence of their strong adhesions to their sheaths, and the surrounding organised lymph in which they were imbedded. These, together with the popliteal vein, were similar in condition to the inferior cava, except that the substance they contained was thinner, of a brown colour, and somewhat purulent appearance. In the remainder of the saphena, and in the veins near the foot, there was a plug of coagulum; they were otherwise healthy. The iliac and femoral arteries contained a small quantity of blood; the other arteries were empty.

You perceive, gentlemen, that all these last mentioned parts, so accurately detailed by Mr. Hudson, presented, each in succession, marks of inflammation. The subcutaneous areolar membrane is infiltrated, and granules of fat altered, the cells in which they are deposited increased in size, the superficial fascia dense, white, and of flaky appearance, all indicative of the existence of inflammation. It is found extremely difficult to detach the femoral and saphena veins from their sheath, or from the firm organised lymph in which they lay. As the result of long continued inflammation, a large quantity of lymph is poured out along the track of the vessels, and this mats them together in such a manner as to present considerable obstruction to their detachment. The veins and lymphatic glands also exhibit distinct proofs of inflammatory action. Why do I make this recapitulation? Because I think it is necessary to impress upon your minds the fact that all these tissues, and not merely the veins or lymphatics, are engaged in phlegmasia dolens. Was there any part spared? Did the areolar tissue, or the fat, or the external surface of the veins escape? No; all were enveloped in the same inflammatory mischief. I think you cannot have a better proof than this, that the phenomena of phlegmasia dolens do not depend on inflammation of either veins or lymphatics solely. In confirmation of this opinion, I may observe, that I lately saw a case in which both saphenas became inflamed and obliterated, in consequence of a cutaneous eruption, and yet the gentleman had no accompanying phlegmasia dolens.

Let us pass over this subject and come to the eye. What was the state of the eye in this woman? She awoke on the morning of the 24th of January with intense pain in the eye-ball, and complete blindness of the affected eye, being unable to distinguish light from darkness. On examination, there was immense serous chemosis discovered, so great, in fact, as almost to conceal the cornea, which appeared, as it were, sunk and buried in it. This chemosis was so exquisitely tender that she could not bear the eye-lids to be touched. Nevertheless, it presented a character totally distinct from any other species of acute chemosis we are acquainted with, its colour being almost *white*. The exceedingly small portion of cornea which was visible appeared to be opaque.

Her symptoms continued with undiminished intensity up to the period of her decease. On examining the eye after death, the cornea was found to be perfectly transparent, and the chemosis to have nearly disappeared. The iris

had lost its natural grey colour, and become nearly white, and its surface was covered with long flakes of lymph, both anteriorly and posteriorly. The aqueous humour was turbid, and had portions of curdy lymph floating in it. The crystalline lens was opaque and of a light brownish tint. The vitreous humour was of a dull yellowish colour, and had its consistence altered, for, on opening it, the fluid which dropped out was thick and ropy.

To recapitulate:—the woman awakes suddenly from sleep one morning during the progress of her complaint, feels an intense pain in the eye-ball, and finds her sight completely gone. This is a very remarkable circumstance. Again, you have the areolar tissue of the conjunctiva attacked by a rapid inflammation of precisely the same character as that which we noticed to prevail so extensively in a similar tissue in the lower extremity. The principal part of the exhalation which results from the inflammation is deposited in the subconjunctival areolar membrane, forming an enormous protuberance which nearly shuts out the cornea from view, exquisitely tender to the touch, but white and exsanguineous in its colour.

I do not hesitate to affirm that in this new species of affection we have witnessed a case of phlegmasia dolens affecting the eye, perfectly identical in all its characters, and differing in no single material point from the inflammation which attacked the lower extremity. In the leg we have various tissues engaged in the inflammatory process, the skin, areolar tissue, adipose substance, fascia, arteries, veins, and lymphatics; in the eye we have the conjunctiva, iris, aqueous and vitreous humours, and crystalline lens involved in one common mischief. Their identity is further corroborated by the nature of the pain common to both, the sudden appearance of the disease, the exquisite tenderness of the eye, and from the fact that there is no other species of disease on record with which we could class this novel disease. It is a form of disease hitherto unknown, and I believe we may claim the honour of having first described it. It was not iritis, ophthalmia, or amaurosis. In iritis there is pain in the forehead, sight is not instantaneously destroyed, the conjunctiva is red and very seldom exhibits much turbulence; but here vision is annihilated as if by a flash of lightning, there is a wall formed round the cornea which hides it from our view, but its hue is pale and bloodless. There is not a single feature in it by which the most anxious and critical inquirer could trace any resemblance between it and amaurosis, except the single and unsupported circumstance of sudden bereavement of vision. It is unnecessary for me to contrast it with any kind of ophthalmia, as their phenomena, progress, and termination are so essentially dissimilar. All that we have seen of it authorises us to conclude that *we have witnessed a disease hitherto unknown and undescribed—phlegmasia dolens of the eye.*

Let me next turn your attention to the case of Esther Green, who was also admitted shortly after her confinement. This woman was delivered on the 5th of March, and dismissed about six days afterwards, apparently well. On the 29th, after having previously taken cold, she got symptoms of fever, accompanied by pain of the belly, chiefly affecting her in the hypo-gastric and right iliac regions. When she came in on the 31st, there was very little fever present, her pulse was slow and regular, and her skin cool; but she was pale and anxious, had general tenderness of belly, with griping diarrhoea and nausea, and complained still of considerable tenderness on pressure over the region of the uterus. Having consulted with Dr. Montgomery, we ascertained that the uterus was enlarged and painful. The case, then, was one of

metritis, but not of a very acute character, and which had produced by sympathy a disturbance in the functions of the stomach and intestinal canal.

Eight leeches were applied over the region of the uterus, to be repeated daily, until the pain and tenderness were relieved. We next had recourse to the use of mercury: but as her bowels were in an irritable state we prescribed the mildest of the mercurial preparations, hydrargyrum cum cretâ, and to this we added Dover's powder. Two scruples of the former to ten grains of the latter were divided into twelve pills, two to be taken every fourth hour. This combination is extremely valuable in many cases of inflammation of the viscera of the abdomen, particularly when accompanied by irritation of the intestinal mucous membrane, as manifested by griping and diarrhœa. After two days there was a slight fetor of breath apparent, and we gave the pills twice a-day instead of every fourth hour, as our object was to affect the system gently, and not bring on profuse salivation. These remedies, with the use of blisters over the region of the uterus, were quite sufficient to remove the disease. The metritis was not very acute, nor was it anything of a specific character; there was no puriform or other morbid discharge from the vagina, and the patient was a young woman of good constitution.

I shall conclude this lecture with an account of a case of puerperal mania. A soldier's wife, aged about twenty-one, and apparently of sound constitution, was admitted into the clinical ward of Sir Patrick Dun's Hospital, on the 6th of March. Eight days before admission she had been delivered of a seven months' child, and it being necessary for her to leave the barracks next day, she got up, drank a glass of whiskey, and walked out of the barracks without any assistance. This imprudent exposure, combined with distress, want of sufficient care, and grief at leaving her husband, operated most unfavourably on her nervous system, and she began to exhibit indications of puerperal mania on the sixth day after her confinement. For this she was bled; and, to add to her misfortunes, the vein opened again during her struggles, and a large quantity of blood was lost, the precise amount of which we were not able to ascertain. It was also stated, that she had taken purgative medicines, but what effect they had we could not learn.

When admitted, her face was somewhat flushed, her eyes wild, pupils natural, pulse 125, small and rather weak; the lochia were suppressed, as also the secretion of milk, and she was in a state of extreme agitation, accompanied by mental depression, and constant delirium. Shortly after admission, she became so violent and unmanageable, that it was found necessary to apply the restraint of the strait waistcoat. On the 7th, we found her raving as before, and in a state of constant nervous agitation. Her delirium was of a melancholy and desponding character; her imagination was filled with forebodings of future misery, and she expressed in abrupt and thrilling sentences the emotions of a soul abandoned to religious despair. Notwithstanding her incessant agitation, raving, and sleeplessness, there was no effusion of the eyes. Her look, it is true, was wild, and, at times, maniacal; but there was injection of the conjunctiva, and the sclerotic exhibited a pearly whiteness. The pupils were also natural. There was, moreover, no unusual turgescence or abnormal pulsation of the carotid and temporal arteries, and the temperature of the scalp did not exceed the ordinary standard.

But then her cheeks were greatly flushed. Did this indicate congestion of the brain? I think it did not. The flushing of the cheeks was the result

of excitement, nervous agitation, and incessant jactitation. When the mind is strongly disturbed by overwrought feelings, and when the body is at the same time in a constant state of active motion, it is quite natural that the cheek should be flushed, and that the flushing should vary considerably, increasing, diminishing, or disappearing according as the intensity of the mental delusions and maniacal agitation varied. Diseases affecting the mind present this manifest difficulty : they often react upon the body so as to derange many of the corporeal functions, and great care must consequently be taken to distinguish such changes from those that are antecedent to and dependent on the mental affection.

Again, this young woman was constantly breaking out into perspirations ; indeed, until a few hours before her death, her body was continually bedewed with moisture. Here we have another instance of the power of strong mental impressions in affecting the secretion of the skin. The fearful ideas that overwhelmed her mind, aided by her incessant agitation and attempts to escape from restraint, caused her to break out into perspirations. Besides, irregular perspirations of this kind, without any previous exaltation of animal temperature to account for them, are often characteristic of a profound lesion of the nervous system, or of the vital activity of the whole economy. Illustrations of this are frequently observed in cases of hydrophobia, delirium tremens, cholera, phthisis, syphilitic and mercurial cachexy, and many cases of obstinate rheumatic or arthritic affections. In addition to these symptoms, this young woman had another of very considerable importance, namely, diminution of the urinary secretion ; she had passed water once on the 6th, but, with this exception, had discharged none before the period of our mid-day visit on the 7th.

We found the patient, on the 7th, in a state of excitement ; raving, agitated, sleepless ; and so unmanageable as to require the restraint of the strait waistcoat. From the analogy which existed between her symptoms and those of delirium tremens, I was induced to try tartar emetic ; this it was necessary to mix with her drink, as she refused all medicine. In addition to this, I had her head shaved and covered with cloths, dipped in tepid vinegar and water.

On the 8th, we found that she had taken six grains of tartar emetic during the last twenty-four hours, and had vomited four times. In the course of the day she became extremely violent, burst her bonds, and ran through the wards, to the great terror of the patients. She was, however, seized and brought back to bed, when she became much more tranquil. The tartar emetic was continued in the form of enema, and in this way she took four grains more, when its use was omitted, and she began to take the acetate of morphia in doses of a quarter of a grain every second hour, until sleep was produced. I should have observed, that she had not slept since her admission, except once for about six hours.

On visiting her on the 9th, we found her asleep, and learned that she had taken three grains of the acetate of morphia. We therefore ordered the morphia to be discontinued, and finding, on inquiry from the nurse, that her bowels had not been opened satisfactorily since her admission, we prescribed a purgative mixture, composed of infusion of senna, sulphate of magnesia, electuary of scammony, and tincture of jalap. One-half of this was administered with some difficulty by the mouth, but proved inoperative, the other half was given in a few hours afterwards. This also having produced no effect, a purgative enema was given, but proved equally inefficacious. We then gave her two drops of croton oil, which succeeded in overcoming the obstinacy of the bowels, and she had four copious motions.

On the 10th the report was, that she had passed the night without sleep, and in a state of great agitation and violence, but became much calmer towards morning, and so quiet that the strait waistcoat was removed. Her pulse was 120, her tongue rather dry, very little flushing of the face; skin bedewed with perspiration as before. The mental wandering continued, but she was much more manageable, and put out her tongue when desired. She was ordered a light nutritious diet, and to have half a grain of the acetate of morphia every fourth hour. This was continued until it produced the desired effect, and she slept for about four hours during the night. She awoke at an early hour, in a state of excessive agitation, became violently delirious, and attempted to get out of bed. After some time she became more quiet; but it was evident, from the collapse of her features, and the sinking of her pulse, that it was the collapse of exhaustion, and not the calm of relief. She lay for some time with her eyes half closed, her face pale but tranquil, and her pulse fast ebbing; she had no symptoms of convulsions or coma, and died tranquilly, and without a struggle, at half-past six.

We were fortunate enough to obtain an inspection of the body six hours after death, before decomposition could have produced any alteration of texture or appearance, even in the most delicate structures of the body. The brain and uterus were the parts to which our attention was chiefly directed.

The most careful examination could discover in the brain no phenomena in the remotest degree capable of explaining the occurrence of delirium or death. There was no thickening of the membranes, no sub-arachnoid effusion, no unusual vascularity of the superficial or central parts, no abnormal quantity of fluid in the ventricles, no softening, hardening, or degeneration of structure; every thing was unaltered and healthy. We also examined the uterus. It was of the size that organ ordinarily is at the same period after parturition, that is to say, about half as large as the fist, and of a perfectly healthy appearance. Its structure was also natural, and it exhibited nothing worthy of remark in its interior. The rest of the abdominal viscera were healthy; the chest was not examined.

Dissections of persons who have died of puerperal mania are of rare occurrence, and it is seldom we have so favourable an opportunity of inspecting the body. The results obtained militate strongly against the opinion, that delirium, especially when violent and uninterrupted, always depends on changes in the brain, capable of being appreciated after death.

LECTURE LVII.

HEADACHES IN WOMEN.—AMENORRHŒA.—LEUCORRHŒA.—HYSTERIA.

No cases prove more troublesome to the practitioner, and for none is he more frequently consulted, than the headaches of young women. The treatment of this affection, when it arises from an obviously plethoric habit of body, frequently attended with constipated bowels, is sufficiently well understood, and the physician feels pretty confident of giving relief by prescribing early hours, spare diet, and active exercise, together with the occasional exhibition of rather powerful purgatives. When the determination of blood to the head is very violent, such constitutions bear loss of blood well, and accordingly leeches may be applied behind the ears, or to the feet: when applied in the latter situation, the bleeding can be easily promoted by keeping the feet in hot water, and I think that this method is even more efficacious than the application of leeches to the head, or its immediate vicinity; occasionally immersing the legs as far as the knees in water, as hot as can be borne, will relieve the headache.

The effect of hot water thus applied to the lower extremities, on the general circulation, is familiar to all, and was exemplified in a striking manner in the case of an old gentleman subject to attacks of violent palpitations, accompanied by the feeling of approaching dissolution. I was sent for during the absence of his attending physician, Doctor Beatty, and found him in one of those paroxysms; it had lasted many hours, much longer than usual, and a fatal termination was expected both by himself and his friends, as the remedies which usually gave him relief had been tried in vain. By the use of a pediluvium as hot as he could bear it, the palpitations and the sensation of anxiety under which he had laboured, ceased in a few minutes, and he lay down, took some nourishment, and had a refreshing sleep, from which he awoke quite recovered.

In explaining effects so striking, we must not merely confine our attention to the fact that the pediluvium restores the active circulation of the lower extremities, but must recollect the extreme nervous sensibility of these parts, particularly the soles of the feet: no part of the surface of the body possesses so exquisite a degree of feeling, and hence none is better calculated for being the medium of receiving impressions from cutaneous applications. In most persons the immersion of the feet in water even moderately hot, causes a powerful impression, and often a passing sensation of nausea. When cold water is used, the general circulation is visibly deranged, and respiration somewhat affected, as may be seen in the case of persons walking into the sea; and it is worthy of remark that this impression of cold on the feet acts likewise on the alimentary canal, as is exemplified in the immediate good effects occasionally experienced in cases of colic with obstruction, from causing the patient to walk with bare feet on cold flags, a mode of proceeding at times also effectual in promoting the evacuation of urine in spasmodic dysuria. I dwell on

these facts, because there is in certain constitutions a close connexion between cold feet and headaches, the former appearing in many cases to aggravate or even induce the latter; in ordering applications to the feet in such cases, whether in the form of simple or medicated pediluvia, of sinapisms, or of frictions, the scientific physician will be guided by a knowledge of the extensive sphere of action such local applications enjoy.

In the habitual headaches of robust and plethoric young women, it is sometimes necessary to have recourse to general blood-letting, when the paroxysm is violent. Thus, in the case of a young lady, seen by the late Dr. Cheyne, Sir Henry Marsh and myself, in consultation with Dr. Stokes, the paroxysms of headache were of most distressing severity, and had baffled for years all internal remedies and external applications, nor were they at all relieved by the means we recommended as the result of our consultation; after repeated attacks, Dr. Stokes bled her *ad deliquium*, during a violent paroxysm of headache, and with immediate relief; and it is very remarkable that the relief was permanent, for she has not since been attacked. Where a suppression of the catamenia occurs in such persons, it of course aggravates the headache, and in many instances it is the sole cause of it; indeed, this applies to all cases of headache occurring along with suppression, and therefore it may be well to offer a few remarks on the most effectual method of restoring the menstrual evacuation.

The periodicity of this function can still be traced, even in cases where suppression has continued for a great length of time, by means of the menstrual *molimina*, which occur at stated intervals; in endeavouring to bring on the discharge, therefore, we must be guided as to the time the attempt should be made, by an observance of the period at which these *molimina* occur; for a few days before that time, our efforts to produce a determination of blood to the uterus may be judiciously employed, and if they fail, the attempt should be abandoned until a few days before the next menstrual period; of course I speak not here of the general constitutional treatment, for this must be constantly persevered in, one of the chief means of bringing back this evacuation being the restoration of the health to the natural standard; in some this is to be affected by tonic, and in others by an opposite mode of general treatment.

But of this it is quite unnecessary to speak, as I suppose you are all acquainted with the essential difference between the general modes of management required according to the constitution and habits of the patient. What I wish to impress on your minds is, that all those remedies which actually determine to the uterus or its neighbourhood, as pediluvia, stuping of the genitals, leeches to the inside of the thighs near the labia, aloes, and other stimulating purgatives, &c., should be only used at the times already spoken of. To use them at any other period, either after the *molimina* have disappeared, or during the intervals between them, tends in most cases still further to derange nature, by determining to the uterus at an unseasonable time, when there is no natural tendency to that organ; under such circumstances, the very same means will frequently fail and prove injurious, which, applied so as to coincide with the time of the natural effort, would have been successful.

To illustrate these principles by an example; we are consulted in the case of a young woman, affected with various hysterical symptoms for several months, and during that period more than usually subject to headache, languor, loss of spirits, diminution of appetite, and irregularity, usually constipation, of bowels; she is pale, and complains of various pains and uneasy

sensations, and has not menstruated since the accession of these symptoms ; here it is evident that the constitutional treatment must be strengthening and tonic ; the practitioner will, therefore, recommend regular hours, much gestation in the open air, a nutritious diet, tepid and afterwards cold shower baths ; he will regulate the bowels and afterwards prescribe a course of tonic medicines, chalybeates, preparations of bark, strychnia, &c. ; he will likewise inquire carefully when the last period happened, and when and how often since that occurrence menstrual molimina were observed.

He thus ascertains when they should again recur, and contents himself with enforcing the constitutional treatment, until about six days before the calculated time. Then he lays aside the other medicines, and has recourse to those means which determine to the uterus. Two leeches are applied to the inside of the thigh near the labium every second night, until they have been three times applied. The bleeding is encouraged by stuping. On the intermediate days, the bowels must be actively moved by aloetic pills ; and for three nights before and after the day of the molimina,* hot pediluvia, rendered stimulating by mustard seed, may be used ; during the same time, also, frictions with stimulating liniments should be applied to the feet and legs every morning, and oil of turpentine or tincture of cantharides may be exhibited internally, while the necessity of more active exercise is inculcated. The intention of the leeching is to produce a tendency of blood to the part, which tendency is increased by each repetition of the application, and it is still further augmented by these applications being made only about the time that the menstrual discharge should have taken place. *If these means fail, they must for the moment be laid aside, and the constitutional treatment must be again resumed until the same number of days before the next period, when the list of remedies, above spoken of, must be again tried, and in few cases indeed shall we find them to fail.*

This periodic application of means calculated to determine to the uterus, at the very times that the efforts of nature are directed to the same organ, I have found most successful and satisfactory. It is true that the catamenia may be, and in hundreds of cases are, restored by medicines exhibited at random with regard to the periods ; but there is no doubt that their re-appearance can be effected with much greater certainty in the way I have pointed out, and if I am not mistaken, their re-appearance at the natural period has a more salutary effect on the constitution than if they had been forced to come on at other periods. This rule of practice is perhaps not new ; it is not proposed as original, but I am anxious to put it forward strongly, because daily experience proves that it is disregarded by the majority of the profession. With regard to the application of leeches to the thighs, I have mentioned two as a fit number in weakly habits, where the constitutional treatment must be strengthening and tonic ; it is right to observe that in plethoric young women, in whom a contrary mode of constitutional treatment is proper, four or even six leeches at a time may be used with advantage.

As I am speaking of the state of the menstrual function in the female, I wish to bring under your notice the singular effects of electricity on this secretion, as witnessed by Dr. Le Conte, and related by him in the *New York Journal of Medical Science*. “Five negroes were simultaneously prostrated by a single stroke of lightning on a plantation in Georgia. The sun was shin-

* By *molimina* are meant pains in the loins, thighs, and hypogastric region, flushings, colicky pains of the abdomen, increase of headache, and a general feeling of malaise, which are familiarly known among females as indicating a constitutional effort.

ing brilliantly at the time, and a greater portion of the visible hemisphere presented the usual serenity of the summer sky. A singular and rather angry-looking cloud had, for a short time previously, been observed near the verge of the south-eastern horizon, from which occasionally proceeded the low rumblings of very distant thunder. Suddenly the whole atmosphere was illuminated by a flash, succeeded by a single report, and the cloud quickly dispersed, precipitating a little rain. The five negroes were all taken up in a state of apparent death. Three of these could not be resuscitated, although all the ordinary means were assiduously employed. The following is Dr. Le Conte's account of the other two :—

“Charlotte, an adult woman, aged twenty-nine years, was standing about five feet from the root of a tree. After remaining in a state of insensibility for some time, she gradually recovered her consciousness. A dose of castor oil was then administered. The skin on her right shoulder was abraded for a space as large as a dollar. Her clothes were rent into shreds; on the right side of her body the skin was blistered, and marked with discoloured streaks, which extended anteriorly on the lower part of the abdomen towards the pubis. A small streak likewise extended along the interior aspect of the right arm. She complained of pain in the stomach and bowels for three weeks. No vomiting or burning in the hands and feet, as was experienced in the next case. She has been married several years, but has never been pregnant. Her menstruation was perfectly regular prior to the reception of the shock, but has since that time been very irregular; sometimes having two periods per month, and then escaping two months. The flow has been also much diminished in quantity. Her health has not been very good since she was struck; manifestly resulting from her menstrual irregularity. A recent copious bleeding has afforded her evident and immediate relief. Her reproductive functions appear to continue dormant.

“Sarah, a woman aged at least seventy years, was standing immediately beside the last. She, likewise, gradually recovered her consciousness. No medicine was administered. Her clothes were rent; and, after a few days, marks of discolouration were manifested along the right arm and right side of the trunk. A violent paroxysm of vomiting followed the restoration to a state of sensibility, which continued with occasional interruptions for ten or twelve hours. As in the preceding case, she complained very much of pain in the region of the stomach and bowels, for at least two weeks after the accident. A troublesome sensation of burning was experienced in the palms of her hands and the soles of her feet; and in the course of two or three weeks a swelling made its appearance under her right foot, which ultimately resulted in the exfoliation of a portion of the thick, indurated epidermis of that part, about an inch and a half in diameter.

“The catamenial discharge, which had, in accordance with the ordinary arrangement of nature, ceased for more than twenty years, was completely and, thus far, permanently re-established. At least, a discharge from the genital organs, having all the obvious and sensible physical characters of the catamenia, and observing, with rigorous exactitude, its peculiar law of periodicity, has been established, and continues to recur, with the utmost regularity, up to the present time (August, 1844), after the lapse of more than a year. She has not missed a single menstrual period since she was struck by lightning. To use a liberal paraphrase of her own language, her ‘Moons return as regularly as when she was a young woman.’ The flow comes on with the usual premonitory symptoms. Her mammæ have undergone an obvious preter-

natural enlargement, apparently originating in a sympathetic irritation, emanating from the establishment of the reproductive functions. This woman has had but one child, to which she gave birth soon after reaching womanhood. The catamenial flux is represented to have been regular up to the period of its natural cessation, between forty-five and fifty years of age ; subsequently to which epoch she has presented all the appearances ordinarily attending the gradual approach of the state of senility in a vigorous constitution. The electrical shock likewise completely-relieved her of a troublesome strangury which had harassed her for four or five years. Very recently she has occasionally had a very slight recurrence of the same complaint, although under a much milder form. Otherwise her health continues perfectly good, there being, so far as symptoms show, not the slightest indication of the supervention of organic disease of the uterus."

To return to what I was previously speaking of. The restoration of the menstrual evacuation to its proper period and quantity will, in many cases, be in itself sufficient to relieve the tendency to headaches. In some young women, however, this tendency may exist from the beginning without any menstrual derangement, or may, along with many hysterical ailments, be caused by leucorrhœa. Where leucorrhœa exists, the use of pediluvia often increases the evil, and must therefore be avoided. In young women, leucorrhœa causes, as is as well known, a series of most distressing symptoms, and therefore, whenever headache is complicated with this, we must remove the latter, as the first step in the cure.

Having briefly sketched the treatment to be pursued in headache, as it occurs, first, in plethoric young women ; secondly, in cases of suppressed menstruation ; and thirdly, in cases of leucorrhœa ; I must next speak of headache in young persons of a delicate, excitable temperament, without any menstrual or leucorrhœal complication. Such persons are said by their friends to be extremely nervous, and are subject to every variety of hysterical seizures, all, however, marked by the violence of the accompanying headache. No matter what be the form of the hysterical seizure, whether it be fits, trance, or catalepsy, the permanent symptom is headache, and that proportioned to the violence of the seizure ; it is of the pain in the head they complain, when able to express themselves, and they all feel convinced that it is the chief cause of their other sufferings. In some this pain is attended with flushed countenance ; in others, the external signs of cerebral congestion are less evident ; but in all, the true cause of the headache is rendered evident by its immediate aggravation, if wine, even in the smallest quantity, be administered in order to counteract the alarming state of debility to which such patients are frequently reduced. It is this pain in the head which often keeps such persons awake night after night, and which, in habits such as I have described, the physician finds so extremely difficult to remove ; for it is evident that most of the means usually resorted to for the cure of determination of blood to the head, must act very injuriously upon constitutions so delicate and possessing so little stamina.

Such persons bear active purgation very badly, and loss of blood, whether general or local, infallibly increases the constitutional excitability and weakness ; it is true that much temporary relief often attends the application of leeches to the temples, and the headache occasionally ceases altogether, and usually is, at least, considerably diminished while the blood is flowing from the leech-bites, and for a short time afterwards. But this relief never lasts more than a few hours, and, indeed, often ceases very shortly after the actual

bleeding has been stopped ; and we then have the mortification of finding our patient as much tormented by the headache as ever, while she is at the same time considerably weakened by the loss of blood ; indeed, it may be laid down as a rule of practice, applicable to other parts as well as the brain, that in debilitated, nervous, and hysterical females, however violent the congestion of an organ may be, the attempt at curing this congestion by either general or topical blood-letting is injudicious, for when the constitution recovers from the immediate effects of this treatment, it will be found more disposed than ever to give rise to congestions, usually of the same, occasionally of some other part.

The truth of this principle is strongly confirmed by the effects of blood-letting, either general or topical, in cases of epilepsy *in weak and nervous habits* ; and yet no disease is more manifestly dependent on a state of cerebral congestion than the epileptic fit ; detraction of blood is sure to remove the violence and shorten the duration of the fit, but it is as sure to increase the subsequent tendency to their recurrence. Thus, a lady concerning whom I was consulted by Mr. Kirby, had been liable every third or fourth month to a violent fit of epilepsy for the last twenty-five years ; about a year ago a young practitioner imprudently used the lancet, and she has since been subject to an attack every third or fourth week.

These observations would detain you too long were I relate the various cases illustrative of this truth I have witnessed, and often witnessed with pain, on account of the injurious consequences that resulted from its being either unknown or overlooked. In such cases where much suffering is complained of, particularly in so important a part as the head, the practitioner, whose attention is forcibly drawn to this prominent feature of the complaint, both by the patient's suffering, and the representations of her friends, is too apt to be led away by the temptation of affording striking and immediate relief of this particular symptom ; he applies leeches ; the headache returns in a few hours, and leeches are again applied in increased number, and perhaps repeated a third time, until the debility is so alarming as to induce him to stop.

What is now to be done ? The young lady's head is shaved, the scalp and perhaps the nape of the neck are blistered, or else cold lotions and bladders full of ice are applied to the shaved head, and in short this delicate female, labouring under hysterical congestion of the brain, is ruthlessly subjected to the same severe discipline and remedies that are required for the treatment of actual phrenitis ; nay, in two cases, I lately saw salivation induced, I need scarcely add, with great subsequent injury to the constitution of the patient. Let me again repeat that this headache and cerebral congestion are sometimes accompanied merely by debility, watchfulness, and repeated attacks of common hysterical convulsions. In other females the convulsions are accompanied by a peculiar trance-like state, in which the patient, when not agitated by the convulsions, lies tranquil and quiet, the eyes being open, but she is totally unable to speak or move, and her perceptions and memory are extremely imperfect. In others, again, the convulsive movements gradually cease, the eyes are closed, and the patient appears to be in a comatose state ; she hears, however, and can whisper a few short words intelligibly.

To treat this affection properly, it is necessary to bear steadily in mind that its natural tendency, when art does not interfere, is by no means dangerous. It is true that the patient's state appears very alarming, particularly when many other anomalous symptoms affecting the stomach and bowels accompany those already described ; still, however, in the weakly and delicate, and at present, my observations must be considered as entirely confined to such

persons, the danger from the cerebral affection, however violent, is but trifling. To remove it, however, as speedily as possible, without irritating, weakening, or otherwise injuring the patient, is an object of great importance. In such cases I never bleed, never leech, never order the head to be shaved, nor do I ever blister. The means to which I trust are, first, moderately cold applications to the forehead ; secondly, attention to the bowels by means of fetid and terebinthinate enemata, at least once a day ; thirdly, attention to the state of the bladder, lest water should accumulate, as it frequently does, in that organ ; fourthly, extensive, diligent, and frequently repeated dry cupping of the integuments in the vicinity of the head ; fifthly, the internal exhibition of oil of turpentine in considerable doses ; sixthly, the repeated use of stimulating liniments to the abdomen and lower extremities ; and, lastly, when the fit has subsided, or other remedies have failed, the *nitrate of silver*, in considerable doses.

The utility of both nitrate of silver and oil of turpentine in such cases, was suggested to me by the good effects these medicines are found to produce in epilepsy, particularly when it occurs in persons of a nervous and delicate habit ; and since I have employed them in hysterical determination to the head, I have been able to overcome these and similar affections with much greater facility than formerly : of these, as has been already observed, the oil of turpentine is best suited to the violent stages of the disorder, and may be given in doses of one or two drachms, to be repeated according to its effects. The best vehicle is cold water ; some will bear and derive advantage from two or three doses of this medicine in the day, experiencing from its use a diminution of headache, and removal of flatulence, together with a moderate action of the bowels and kidneys. In some cases, as occurs also occasionally in the treatment of epilepsy, this medicine cannot be persevered in, in consequence of the violent dysuria and hematuria it contains ; slighter degrees of these affections should not, however, prevent our continuing it.

When the paroxysm has abated, or when the oil of turpentine has failed, the greatest benefit may be derived from the nitrate of silver continued for five or six days at a time, in doses of half a grain four times, or even six times a day. When the bowels are constipated, there is no better combination than nitrate of silver with minute doses of compound colocynth pill, a formula, I believe, first recommended in dyspepsia by Dr. James Johnson of London, and which I have found invaluable, not merely in the headaches of hysterical young women, but in those of men, particularly the habitual stomach headache to which delicate and literary men are so subject.

Sometimes it is necessary to combine the dose of nitrate of silver with grain or half grain doses of aloes, in order to procure sufficient alvine evacuations ; but generally the nitrate of silver displays in its action a double superiority over most other tonics ; for it not only determines *from* the head, if I may use such an expression, but also sometimes acts as a gentle aperient. In the two following cases, small doses of nitrate of silver acted with considerable energy on the bowels. A gentleman, concerning whose case I was consulted by Mr. King of Stephen's-green, and who laboured under determination of blood to the head, took, by my advice, after other medicines had been tried, nitrate of silver, to the extent of one grain three times a day. It produced violent catharsis, and was omitted for some time, when it was again exhibited in the diminished dose of half a grain, but still produced the same effect ; in consequence of which we were obliged to leave it off altogether. In another gentleman of literary habits, to whom it was given combined with

small doses of compound colocynth pill, for the purpose of relieving headache and *obstinate constipation*, a smart purgative effect was constantly produced by half a grain of nitrate of silver combined with three of colocynth pill.

In the treatment of headache attended with general debility, we often derive much advantage from the acetic acid liniment, of which the following is the formula :—

R Olei Terebinthinæ, f3iiss.
 Aquæ Rosæ, f3iij.
 Vitellum Ovi unius.
 Acidi Acetici, f3vj.
 Olei Limonum, min. viij. Fiat Linimentum.

This liniment is in imitation of St. John Long's ; and when it is to be applied, the following method must be observed :—The bottle must be very well shaken, and a table-spoonful poured into a saucer ; this is to be taken up in a sponge about the size of a very small apple, previously dipped in hot water, and squeezed dry ; with this the nape of the neck is to be diligently patted (not rubbed) for five minutes or longer. This process is to be repeated night and morning ; and when the skin on the nape becomes irritated and sore, the application may be made to the spine, between the shoulders for a few days. A similar mode of proceeding may be adopted with much advantage in various neuralgic and visceral affections. In other cases of a similar nature, more benefit follows the external employment of croton oil, from ten to thirty drops of which may be dissolved in an ounce of compound camphor liniment. One or other of these applications has, in my practice, superseded the use of tartar emetic ointment, which is too unmanageable and painful.

With reference to dry-cupping in cases of hysterical headache, coma, &c., it is sufficient to remark that several, often so many as six cups, should be fastened on at once to the nape of the neck, between the shoulders, and below the clavicles ; these cups should be all tolerably large, besides which, one or two small ones may be applied near the ears. The suction should be powerful, and should be sufficient to fix the cup for at least ten or fifteen minutes. In a young lady in Grafton-street, in whose case I first tried this method, its good effects were most striking ; she had been lying for twenty-four hours, with her face somewhat swollen, her eyes open and unmeaning, unable to speak, and frequently agitated by violent hysterical convulsions. Mr. Moore applied the cups, and after they had been some time on, she recovered her consciousness and was able to speak. This result was the more remarkable, as she had, a year before, laboured under a similar but less severe attack, for which she was treated by two of the most eminent practitioners in Dublin, by means of shaving her head, leeches, ice, &c., &c., a mode of treatment which left her in so weakened and nervous a state, that her removal to the country became necessary, and she did not recover her usual strength for several months. The gratification of her friends, therefore, on the present occasion, was very great indeed, at finding much more decided and speedy relief effected without the necessity of resorting to the remedies employed in the former attack.

In epilepsy, it may be easily conceived that dry cupping applied to the neighbourhood of the head may afford considerable relief ; and so, in fact, it does, and is most useful in averting the paroxysms, particularly in those cases where previous headache, or other premonitory symptoms, advertise the patient of the approach of the fit in time to have recourse to this application

Its good effects have been well illustrated in a young lady thus affected, and concerning whose case I was consulted by Mr. Halahan, of Stephen's-green. I may observe that there is a species of hysterical delirium, attended with great nervous excitement, sleeplessness, talkativeness, and delusions, such as supposing persons to be present who are not so, accompanied by a frequent wish to get out of bed in some, while others hide themselves under the clothes when a stranger approaches. I say, in such cases I have known the most disastrous consequences result from the depleting system being solely relied on ; in such cases the dry cupping, as before recommended, would probably prove a most valuable auxiliary to a well-directed internal treatment.*

Mr. Barker, of Gardiner's-row, who had formerly frequent opportunities of witnessing the effects produced by dry cupping, has given me the particulars of a very curious case : a lady of rank, living in the vicinity of Dublin, was occasionally attacked by violent determination of blood to the head, and each of these paroxysms was sure to induce, before it ended, a violent propensity to suicide, which she very nearly succeeded in gratifying on more than one occasion. This propensity and the cerebral congestion which caused it were afterwards removed, or rather prevented, by the timely application of dry cupping, as soon as the well-known premonitory symptoms of the paroxysm made their appearance.

Having alluded, in the commencement of this lecture, to some points connected with the treatment of leucorrhœa, I shall shortly recur to the same subject. Dr. Churchill, and many recent authors, insist much on the distinction between vaginal and uterine leucorrhœa, and refer to examinations with the speculum, to prove that the latter are much more frequent than the former, especially in cases where the general health is seriously deranged. I cannot say whether this distinction is correct ; but it appears, *a priori*, by no means necessary to account for the origin of serious constitutional symptoms in leucorrhœa, by supposing that the mucous membrane of the womb itself is implicated in such cases ; for surely the vagina is a part possessed of an organization, endued with nervous susceptibility and sympathies, quite sufficient to explain any amount of derangement of the general health ever observed in fluor albus. Be this as it may, experience proves that leucorrhœa from whatever cause, when at all copious, occasions great prostration and manifold nervous suffering. The general treatment adapted to such invalids is sufficiently understood ; but the means calculated to check the flux require some observation.

Astringent lotions are of the greatest service if properly applied, which they very seldom are, when used in the way of injection ; for a woman can seldom be taught to introduce the syringe sufficiently, or inject its contents effectually ; therefore the lotion is seldom, especially in unmarried females, brought into actual contact with the diseased secreting surface. To remedy this defect, I have been in the habit of advising my patients to introduce the lotion by means of several pledgets of linen, first moistened with the lotion, and then rolled together, so that they can be readily pushed far into the vagina and be withdrawn after a few minutes. If this be several times repeated, the

* Though not immediately connected with the subject under consideration, I may mention in this place, that I have derived the greatest advantage from dry cupping in some forms of epistaxis, in which complaint, much benefit is frequently derived from the application of cups to the nape of the neck, especially when employed to arrest the paroxysms, in cases where precursory symptoms of a well-marked character precede the attack of bleeding from the nose.

lotion will have time to act thoroughly on the whole surface of the vagina, and, if need be, as far up as the os uteri. Acetate of lead, sulphate of zinc, alum, and sulphate of copper, will be found to be the most effectual astringents; but they must be used in solutions of sufficient strength. In very obstinate cases, nitrate of silver, two grains to the ounce of water, may be employed in the same way, care being taken to protect the hands from its blackening influence, by wearing gloves during the operation.

When profuse leucorrhœa alternates with too copious menstrual discharge, much benefit often arises from the internal use of Fowler's arsenical solution, carefully persevered in during the intervals between the catamenia. The milder preparations of iron, as the pernitrate and tartrate, are often serviceable under similar circumstances; but balsam of copaiba, cubebs, cantharides, and turpentine, which some have recommended in chronic leucorrhœa, are seldom borne; for in such cases the stomach is generally very delicate. Much advantage is, on the contrary, derived from Canada balsam, of which two or three grains made into a pill, with half a grain of sulphate of quina, may be taken four times a-day.

I shall now conclude with a description of two singular cases of hysterical affections.

On the 1st of last September, I was called to see a young lady who was represented to be in a state of imminent danger. On entering the room I found her sitting up in bed, surrounded by several female friends, all in the greatest alarm. Her face was pale, and her countenance indicated a good deal of anxiety. She held in her right hand a cup containing water, which she applied to her lips about every five seconds, and sipped an extremely small portion of the water, which she immediately swallowed with a considerable effort of deglutition, although the quantity was so trifling. She said that she should be immediately choked if she discontinued this perpetual sipping; and she referred to an intolerable uneasiness at the root of her tongue and in her throat, threatening immediate suffocation the moment she ceased to employ herself in swallowing; and so urgent was the feeling that impelled her to this act, that the moment an attempt was made to take the cup out of her hand she began to scream with agony, was agitated with convulsions, and to all appearance seemed in the last agony. This scene had lasted for several hours without interruption, and the appearance of the principal actress was rendered still more tragical by a black mass of leeches around her throat, and the blood from their bites trickling down her neck.

On examining her more closely, I found that there was no obstruction whatsoever to the passage of air through the larynx, and that she could make a full inspiration without any wheezing or noise in her chest; there was no swelling or redness observable at the root of the tongue or in the fauces. As the young lady was of an extremely delicate and nervous habit, being very sedentary and subject to frequent attacks of common hysteria, I immediately conjectured that her present symptoms were the result of an hysterical affection, and accordingly I removed the leeches, stopped the bleeding as soon as possible, and gave her draughts consisting of camphor, aromatic spirit of ammonia, and black drop, under the influence of which the nervous irritation soon subsided, and she fell asleep.

I have mentioned this case, not because its nature and the proper treatment were not sufficiently evident, or admitted of being mistaken by any practitioner of common attainments, but because it presented some circum-

stances concerning the act of deglutition worthy of remark. In the first place, it is clear that the uneasy sensation referred to the throat was a variety, not a usual variety, however, of *globus hystericus*. This uneasy sensation was, like *globus*, accompanied by the sensation of impending suffocation. The efficacy of the constant sipping and swallowing in alleviating this feeling may be somewhat analogous to their well known effects in stopping another affection plainly of a spasmodic nature, I mean hiccup, which in most cases may be cured by a similar succession of quickly-repeated deglutitions of very small quantities of water : again, it is worthy of notice, that any attempt to prevent this process was immediately followed by general hysterical convulsions. How opposite must be the state of the nervous system in hydrophobia, when the slightest attempt to swallow a fluid brings on convulsions !

The next case is one of hysterical vomiting and neuralgia, cured by very large doses of *assafetida*. Anne May, aged twenty-nine, married, has had four children, her last, two years since, still-born ; after which confinement she got cold, with pain in the left side, shooting from the scapula to the region of the heart. She was admitted into this hospital three months ago for a severe attack similar to the present, together with some fever, and was dismissed relieved, having been bled, leeched, and blistered ; readmitted on the 5th of July. She states that, for the last fortnight, she has suffered from pain shooting from the back-bone, and along the course of the ribs, till it arrives opposite the heart, when vomiting of bilious matter is induced by its severity. Never vomits without this precursory pain. At present she rejects everything from her stomach. No tenderness of any part of the abdomen on pressure. Her general aspect is excited, and her respiration is extremely hurried, irregular, and accompanied by heaving of the chest, and occasional sighing. This state of the respiration appears to persist during the whole period of the attack, which, however, in its other symptoms is variable, and consists of paroxysms, alternating with intervals comparatively calm. She lies for some time quiet on her back, and then suddenly starts up, rolls about in the bed, shrieking with agony, weeping, and agitated by violent eructations and vomiting, without, however, any disturbance of the pulse. Has *never had globus hystericus*, nor has she been subject to headache or pain in the temple ; appetite, previous to this attack, pretty good. *Catamenia always regular* ; bowels generally confined ; urine scanty, and deposits a copious sediment ; pulse, 64 ; tongue moist ; complains of thirst (perhaps from vomiting).

On examination of the spine, she shrinks from pressure over the dorsal vertebræ, and along the projections of the ribs, round to the left mamma. No palpitation of the heart ; no morbid phenomena detected by stethoscope.

6th. Ordered actual cautery, to six points on each side of dorsal spine, and ten grains of *assafetida* every second hour.

7th. Paroxysms of pain and vomiting occurred frequently up to 12 o'clock last night, when they ceased, and have not since returned. The cautery was applied, and she took 22 pills. Bowels confined, urine scanty and thick ; other functions natural. Some tenderness still ; respiration now quite tranquil ; slept well.

Adhibeatur enema fetidum bis in die.
Repetantur pilulæ tertiis horis.

8th. No return of pain or vomiting ; there is still tenderness on pressure, but in less degree ; slept well, took 16 pills, and had the two fetid enemata,

which produced two scanty evacuations of hard fæces ; respiration and other functions natural ; bad appetite, she does not care for food.—Convalescent.

13th. To-day she has some wandering pains in the right side, not severe.

My experience in other cases of a similar nature enables me to attribute the cure of this to the assafœtida, and not to the cautery. It is worthy of attention, that she had taken 120 grains of assafœtida before the disease yielded, and that the improvement was permanent. In hysteria, when the patient can be prevailed on to take this medicine, I know nothing more efficacious than assafœtida : but to be serviceable it must be *given in very large doses*, as has been long ago remarked by practical physicians. When exhibited in small doses, as is usually the case, it too frequently appears to be inert, and consequently has of late rather fallen into disrepute.

DISEASES OF THE SKIN.

LECTURE LVIII.

ERYSIPELAS.

THE first disease of the skin I shall bring under your notice is erysipelas. There were some points of interest connected with the history of the erysipelas which prevailed in this hospital during the months of August, September, and October. - In the space of somewhat more than two months, we had about twenty cases of this disease : and, indeed, the morbid cause appears to be still lingering in our wards, though less frequently manifesting itself, for we have had only one case within the last ten days. Its character and mode of treatment have been well described by the late Dr. McDowel, in the sixth volume of the *Dublin Medical Journal*, in a paper which I would recommend you to peruse attentively. It has been observed by Mr. Cusack and others, that when erysipelas prevails as an epidemic, we may expect puerperal fever, and scarlatina of a bad and dangerous type. Hence it would appear that the same noxious quality of atmosphere which generates one disease may give additional malignity to others.

Before, however, I proceed to notice the phenomena of the disease, as observed here, I shall make a few observations connected with the treatment of this affection in general. I am anxious to direct your attention to this point, because the history of this epidemic has furnished some useful lessons, and has shown how much the treatment of any disease will depend on its epidemic character and existing peculiarities. The disease was treated here in every instance, and through all its stages, with wine, quina, and opium ; and with the exception of a single case, this treatment has proved uniformly successful. Erysipelas, you are aware, is generally looked upon as an inflammatory disease, and its treatment is always more or less antiphlogistic, particularly during the early stage. At this period, it is customary to treat it with general bleeding, leeching, scarifications, purgatives, mercury, and tartar emetic ; and I will allow that many cases should be treated in this manner. But the gentlemen who have attended this hospital within the last three months, have witnessed a form of erysipelas which required from the beginning an exactly opposite line of treatment. In the management of the cases which fell under our observation, no one in his senses would think of using general or local depletion, purgatives, or tartar emetic. The moment the disease appeared, we were obliged to attack it with tonics, narcotics, and stimulants.

You perceive, then, that in erysipelas there are two very distinct extremes, between which there are many intermediate shades and varieties. It is well to bear this in mind. When you are called to treat a case of erysipelas, you should recollect that it is a disease capable of exhibiting a great variety of forms, amenable to no fixed line of treatment, and requiring for its management all the sagacity and skill of an accomplished practitioner. I have seen many instances in which this affection appeared in a distinct and well-marked

inflammatory form ; and I have treated cases with venesection, leeching, purgatives, and tartar emetic, and found these means admirably well fitted to remove the disease. Here, on the contrary, wine, opium, and sulphate of quina were the only remedies on which we could rely with any degree of confidence. On the other hand, you will meet with intermediate cases in which these different modes of practice should be employed, either at distant stages of the complaint, and at a considerable interval, or should succeed each other by a rapid transition. Erysipelas, I must again repeat, should not be treated from its name.

Many persons have maintained, when gangrene supervenes on inflammatory affections, and among the rest on erysipelas, that it is the result of an excessive degree of inflammation, and that it might be successfully combated by judicious depletion. This, however, is by no means generally true ; and it is of importance that, in forming proper notions of the pathology and treatment of erysipelas, you should dismiss from your minds all preconceived opinions, and be regulated solely by the impressions derived from correct observation and facts. What I wish to impress upon your minds is, that gangrene may and does occur in cases of erysipelas, quite independently of excessive inflammatory action, and requiring a plan of practice quite different from the antiphlogistic. I do not assert that gangrene does not arise in many instances from the violence of erysipelatous inflammation, and that in such cases it is to be met by prompt and decided antiphlogistic treatment ; but I think your views of the pathology of this disease will be both imperfect and false, if you look upon the gangrene which frequently supervenes in erysipelas as the result of immoderate inflammatory action. The following case, which is one of extreme interest, will, I think, bear me out in my assertion.

Mrs. B., a lady of middle age, was attacked with feverish symptoms on the 24th of last March. Notwithstanding the diligent employment of antiphlogistic treatment by Mr. Barker, the pyrexia increased ; in the course of a few days her throat became sore, and shortly afterwards erysipelas appeared on the face. Her case assumed a very dangerous aspect : she continued seriously ill for some days, and was saved with difficulty. On the 1st of April, Mr. Carmichael advised the diligent application of fomentations, with the view of relieving the local symptoms ; and her son, a young man of eighteen, of temperate habits, florid complexion, muscular frame, and who had always enjoyed a vigorous state of health, undertook the duty of applying the fomentations with much zeal and assiduity. Towards evening, he thought, but without reason, that her case was hopeless, and fell into a violent paroxysm of grief, from which he was induced to rouse himself for the purpose of resuming his occupation of applying the fomentations. While thus engaged, he got, to use his own expression, “a whiff of sickening air from the bed clothes,” and immediately felt unwell.

This was on the 1st of April. On the 2d he was feverish, and complained of headache, for which he got aperient medicine, and was leeches. On the 3rd there was no improvement, and he had passed the night without any sleep. On the 4th, Mr. Carmichael considered it necessary to leech the temples again, and to continue the exhibition of antiphlogistic and aperient medicines. He now began to complain of severe pain in the right shoulder, which at first appeared to be of a rheumatic nature. He became more and more restless, and on the 7th of April was reported to have slept none for the three preceding nights. A very perceptible fulness was now observed under the right clavicle, extending down over the pectoral muscle ; the parts were tender to the touch,

but not red. Mr. Carmichael now examined the hand and arm of the same side with much attention, for the purpose of ascertaining whether any wound or injury had existed, for the symptoms seemed to resemble closely those produced by poisoned wounds. None, however, could be detected.

The restlessness now increased to an extraordinary height; during the following night the patient changed from one bed to another at least one hundred times, and the servants were incessantly employed in making and adjusting three beds, from one of which he wandered to another, impelled by an intolerable feeling of anxiety and uneasiness. During this period his bowels were free, his urine copious; and though his fever was considerable, it was by no means proportioned to the nervous excitement; nor was it accompanied by delirium or pain in the head. The swollen parts of the trunk were leeched freely twice, and diligently fomented, and continued to present the same appearance until the 10th, when a red patch appeared near the shoulder, subsequently spreading into a vividly red erysipelatous blush, which occupied the skin covering the pectoral muscle and right axillary region.

I saw him for the first time on the 11th. His pulse was 120, and by no means deficient in strength; skin hot, but covered with perspiration; he did not complain of headache, but was quite sleepless, and excessively uneasy. His muscular strength was apparently not much reduced, and, indeed, until a few hours before his death, he was able to turn in bed with ease. His tongue was dry in the centre, and furred, but moist at the edges. The erysipelas was now spreading rapidly towards the left side, and down the front of the abdomen. An attempt was made, but in vain, to arrest its progress by the application of nitrate of silver to the skin, around its margin, an operation which was performed with great care by Mr. Carmichael. Mercurial ointment was next applied to the inflamed surface, and although the erysipelas continued to spread, we were led to entertain some hopes of our patient, having succeeded, by means of tartar emetic, followed by opium, in procuring for him much, and, as he said, refreshing sleep.

On the morning of the 13th, however, a black colour of the corium was observed in the situation of one of the bullæ on his left side. This alarmed us; and in a few hours afterwards our suspicions were confirmed by the appearance of dark maculæ in many parts of the erysipelatous surface. These livid patches spread very rapidly, and were in some places accompanied by effusion beneath the cuticle, but in others they appeared to consist in a mere change of colour in the external surface of the erysipelatous corium, without any detachment of the epidermis. The patient took abundant nourishment, and got wine and cordials, but without any favourable effect. The serotum now became engaged, and speedily assumed a gangrenous appearance. In some places the epidermis separated, and the gangrenous surface of the corium secreted sanies in large quantity, but in many parts no detachment of the cuticle took place. On the 14th, nearly the whole of the right side of the abdomen and the serotum was superficially gangrenous, and the belly became tympanitic.

During this time apparently healthy feces were discharged in considerable quantity; the skin was covered with perspiration; the urine was copious and natural; and we had here, what is worthy of notice, seemingly healthy secretions from the bowels, liver, skin, and kidneys, co-existing with extensive gangrene of the surface. His tongue, however, continued dry and furred; his restlessness unabated; and the sleep previously procured by means of opium now ceased, although that medicine was repeated in the same doses. His pulse also began to sink, but he remained quite sensible and free from

delirium until immediately before his death, which took place on the evening of the 15th. During the latter days of his illness he had sweated copiously, and there was nothing remarkable in the odour of the perspiration. I may also observe that the pulse likewise furnished but very fallacious indications; for I can assert with truth, that six hours before his death, though soft and compressible, it still possessed a steadiness and a volume by no means calculated to impart a suspicion of his approaching dissolution. His strength was also such as would lead to an erroneous conception of his real danger: for, as I have before observed, he was able to turn in bed shortly before his death. This observation is borne out by other cases, in which other persons, with extensive gangrenous erysipelas, and in imminent danger, have been known to be capable of walking about.

The evidently contagious nature of the erysipelas in this instance, and the youth and previous good health of the patient, render this case sufficiently remarkable. It is likewise worthy of notice, as proved by the circumstances, that the gangrene did not originate in the excessive violence of the cutaneous inflammation, for it did not appear in those portions of the skin which were primarily and most violently affected. On the contrary, we observed that the parts which became gangrenous had been paler and less tense than those which did not assume that condition, and that the portions of the skin which died were those which had become engaged in the latter stage of the disease. This is of importance; for, combined with other facts, it forms an obvious refutation of the opinion not long since maintained, that gangrene and sphacelus are in all inflammations the result of immoderate inflammatory action, and consequently to be averted by antiphlogistic treatment only.

In many instances this opinion, and the treatment founded on it, are, no doubt, judicious; but that there are cases in which the gangrenous tendency supervenes on inflammation, or in other words, is superadded to the inflammatory process, but independent of its intensity, no one will deny who candidly weighs the details of the case which I have just related, and recollects that the conclusions deducible from them have of late received too frequent a confirmation, from the rapidly fatal progress of putrid sore throat—a form of cynanche which reappeared in Ireland after having almost disappeared for upwards of twenty years. In both cases the disease appears to be infectious, and in both the gangrene seems to be quite independent of the intensity of the inflammation.

This is a question so important in a practical point of view, that I shall make no apology for detaining you, as I am anxious to impress upon the minds of my younger auditors, that there are certain forms of disease termed inflammatory, in which the ordinary treatment by depletion is quite inadmissible.

In the present epidemic of erysipelas, the disease generally attacked the head, commencing in the scalp, or about the nose and cheeks; but in some cases it appeared first on the nape of the neck, particularly in those patients who had been blistered in that situation during the course of fever. The fever which now prevails seldom abates in less than fourteen or seventeen days; and it was generally about the termination of the febrile excitement, and while convalescence was going on, that erysipelas appeared. Usually, on the fourth or fifth day of convalescence, a change was observed in the patient, and the erysipelatous attack commenced, being ushered in by a feeling of weakness and uneasiness, or an indistinct rigour, followed by quick pulse, headache, some increase of thirst, and in most cases by a marked change in the

tongue, which became dry and parched. The inflammation was of a superficial character, expending itself almost exclusively on the external surface of the corium, and not affecting to any extent the subcutaneous areolar tissue.

You are aware that erysipelas becomes obstinate, complicated, and dangerous, in proportion as the inflammation spreads inwards. In such cases its characters are less distinctly marked, and it makes a near approach to a very formidable disease—diffuse inflammation of the areolar substance. The affection of which I am now speaking was generally simple, and in most cases limited to the superficial apparatus of the corium. It was characterised by the ordinary phenomena of true erysipelas, namely, redness, heat, a burning sensation, and slight elevation of the affected parts. There was seldom any remarkable degree of cedema, except in some cases where it attacked the eyelids; and we had no instance of abscesses forming under the skin. It was attended with a considerable degree of constitutional disturbance, and the fever generally continued for four or five days. On looking over the cases of this affection, which have been recorded by the gentlemen who had charge of the patients, I find that in most instances the fever terminated on the sixth day. In many cases a peculiarity was observed, to which I shall by and by allude, namely, the spread of the erysipelalous redness in a perfectly symmetrical manner. I believe I was the first who directed attention to the fact, that when erysipelas commences at any point of the mesial line of the body, it is very apt to spread in a symmetrical manner. Thus, in the present instance, the inflammation commenced in the majority of cases about the nose, and then extended in a perfectly symmetrical manner over the forehead and down the neck; or when it appeared first on the nape of the neck, it travelled down between the shoulders with a very remarkable symmetry of extent and outline. Sometimes this precise correspondence did not exist; but I can assert that in more than two-thirds of the cases it was extremely well marked. It appears, then, that this occurrence is not so very rare as Dr. Johnson supposed. When I first noticed the fact of the occasionally symmetrical spread of erysipelas, he said it was an observation of very little importance, and that it was to be looked upon as a matter of mere curiosity, a phenomenon which a man would not see twice in the course of his life. I have, however, shown it to many of the students half-a-dozen times during the last two months.

The treatment of this affection, which was abundantly simple, and the same in every instance, was entirely regulated by the circumstances under which the erysipelalous attack occurred. No local treatment was employed, nor was any required. It was not necessary to apply leeches, cold lotions, fomentations, or mercurial ointments. The cutaneous inflammation was not either very extensive or intense; and the constitutions of the patients did not admit of any kind of depletion. The internal treatment was determined on, more from a consideration of the circumstances under which the disease had appeared, than from an accurate analysis of the symptoms, or from any preconceived opinions of the nature of the complaint. In the practice of your profession you will be frequently called upon to treat affections, in which you will have to consider not only the existing symptoms, but also the circumstances under which they have originated; and in many instances you will find that your treatment will be determined more by the latter than the former. Here we had a number of patients labouring under erysipelas, at a period when the system was reduced by fever, and the powers of life at a very low ebb. No one could think of using antiphlogistic or depletory measures under such circumstances. Recollecting that our patients had just emerged

from a dangerous disease, we adopted a very different mode of treatment; and in all cases, except where the patient's strength was unbroken, the fever high, and the local symptoms of an intense character, we had recourse at once to tonics, narcotics, and stimulants. We first gave an emollient injection, and then administered sulphate of quina in the form of enema, to the amount of from five to ten grains, blended with mucilage of starch. This was administered twice a-day, and the patient was directed to take small quantities of wine and light nourishment.

Many of the pupils at the time were surprised at this mode of treatment. From the dry state of the tongue, the occasional delirium, the restlessness, and the headache present, they were inclined to think that the patients would be injured rather than served by dietetic and medicinal stimulants of this description. I had, however, witnessed cases of a similar description, and had observed the tongue become clean and moist, the skin soft and cool, the thirst, fever and restlessness subside, and the local symptoms disappear, under the use of wine. In this instance, also, the value of our mode of treatment was borne out by the result; for, with the exception of a single case, all our patients recovered. In this one instance the disease assumed a malignant form, and carried off the patient in a few hours.

She was a young girl of apparently vigorous constitution, and who had got tolerably well through a dangerous maculated fever: towards the middle of the fever she had exhibited symptoms of cerebral excitement, for which we deemed it necessary to blister the scalp. At the time when the erysipelatous attack came on, she had been for several days ill, and was in that low state in which the skin has a great tendency to become ecchymosed, and form bad sores. This tendency I have observed in many instances of low fever, and it is a condition which is always pregnant with danger. The occurrence of ecchymosis, excoriation, and superficial gangrene in such cases is not so much the result of pressure, as of the general debility, and the impaired condition of the fluids and solids of the body. It was in this state of the system, and with her scalp still suffering under the inflammation produced by the blister, that this poor girl was attacked with erysipelas of the face. Unfortunately, at the time the erysipelas attacked the sound skin of the head, the blistered surface was attacked with gangrene; and two dangerous local affections became thus suddenly conjoined. Under this unfavourable complication her constitution sank with great rapidity, and she died in twenty-four hours from the commencement of the attack.

One of our cases of erysipelas occurred in the fever ward under peculiar circumstances, and requires a separate notice. A young woman was admitted some time ago, labouring under spotted fever; she had been many days ill before her admission, and continued for a considerable time in an uncertain state. It is unnecessary for me to enter into any details regarding her treatment; but after the more obvious indications were answered, she was ordered to use the liquor sodæ chlorinate, and became convalescent, or *quam proxime* so. Her tongue began to clean, the abdomen was soft, the bowels natural, the skin cool, and the pulse about 80. One evening she got fresh symptoms of fever, raved during the night, and next morning, when we visited the wards, we found her pulse accelerated, her tongue dry, black in the centre, and dusky-red at the edges and tip, and, in addition to this, she had some diarrhœa. The nostrils were filled with a semi-concrete mucus, exhaling a most offensive odour; in fact, one could hardly approach her bed without experiencing nausea from its extreme fetor. The inside of the nares was red and swollen; in

short, erysipelas was seen occupying the nose, upper part of the face and forehead. It had first attacked the skin and subcutaneous areolar tissue, producing considerable œdema, and from this it had extended to the mucous membrane of the nose. Erysipelas generally commences in the skin, but sometimes it has its origin in the mucous membrane.

I need not tell you that erysipelas of this œdematous character, accompanied by such a remarkable change in the secretion of the nostrils, and occurring in a person weakened by fever, was to be looked upon as a dangerous disease. How did we treat this? Not by the usual antiphlogistic means, for the patient was greatly debilitated. Blood-letting, leeching, emetics, and purgatives were here out of the question; however valuable they may be in ordinary cases, we could not use them here without risking the patient's life. You might think that an emetic or a purgative could do very little harm and might effect much good, but you are to recollect that the girl had nausea, thirst, bowel complaint, and great prostration of strength. What then was to be done? First, we applied a blister to the nape of the neck, to act partly on the brain and prevent delirium, and partly on the erysipelatous inflammation of the nose and forehead. How blisters act in this case I do not exactly know, but you are aware that a blister applied in the neighbourhood of a patch of this kind of œdematous erysipelas is often followed by very good effects. Whether it is by exciting a new irritation, or by directing the current of the cutaneous circulation to another part, and causing a flow of serum thither, I cannot tell, but blisters certainly do give very considerable relief. So much for external means.

Now, with respect to internal remedies, the only one we could give here, with any prospect of benefit, was the sulphate of quina. But the patient had nausea, thirst, and diarrhœa, and if you administer quina by the mouth, under such circumstances, you will do more harm than good. I therefore prescribe it in the form of enema, directing five grains of quina, combined with four of tincture of opium, and two ounces of mucilage of starch, to be thrown up the rectum every fourth hour. Under this treatment the girl began to improve rapidly, the erysipelas faded away, the fever declined, and she is now once more convalescent. I also ordered her nostrils to be repeatedly syringed with warm water and vinegar.

Here, gentlemen, you perceive our treatment has been successful in a case occurring under very unfavourable circumstances. It is a case the study of which will afford you some instruction, particularly if you compare its symptoms, progress, and treatment with the case of erysipelas which occurred in the strong, healthy girl who is lying near, and which we treated on the emetico-cathartic plan.

Let me now call your attention more particularly to a case which afforded a striking example of the symmetry of form sometimes assumed by erysipelas. While the epidemic tendency to erysipelas was observable both in hospital and private practice, the disease was observed in numerous instances to follow the application of leeches, blisters, setons, &c. During this period it was thought necessary to insert a seton in the nape of a young man labouring under hemiplegia. Erysipelas was the consequence. The redness spread from the neck to the face and hairy scalp, and at the time it began to subside in these parts proceeded downwards over the skin of the chest and arms. The outline of the erysipelas was remarkably well defined, and its rate of progression equable: about the fifth day from its appearance it had involved most of the chest and the upper part of the arms, and was now remarkable

for the perfect similarity of form and extent exhibited by the halves into which the whole was divided by the median line. It did not, indeed, seem to have advanced on one side at all more than on the other, and on both the outline was exactly the same; the space it occupied on one side of the median line was, in short, a fac simile of that it occupied on the other, a coincidence rendered more striking by the devious and apparently capricious course the eruption followed.

Thus, when it arrived at the top of the shoulder, it did not proceed along the outside of the arm further than the insertion of the deltoid, from which point it spread obliquely downwards, nearly to the opposite extremity of the biceps. In like manner, it will be observed that when it reached a central point on the sternum, it proceeded with a curved outline, avoiding the mamma on each side, and sloping downwards, to form on the back a figure resembling two festoons. It is clear that both anteriorly and posteriorly it spread much more slowly along the median line, a circumstance probably connected with the great density of the skin and subcutaneous areolar tissue, here more fibrous than elsewhere, and less vascular. Its stopping at the insertion of the deltoid may have been owing to a similar cause. Numerous instances might be brought forward of cutaneous disease journeying onwards at exactly the same rate in one part of the skin as in another; for to this is owing the circular figure assumed by many varieties of lepra, herpes, impetigo, porrigo, &c., when the morbid action originating in one spot spreads equally all around, progressing in the circumferencé and ceasing in the centre. The circular form of fairy rings in pastures, the true nature of which was first pointed out by Dr. Wollaston, affords an example in the vegetable kingdom of an analogous equability of progression from a central point.

I have now seen several examples of this symmetrical spread of erysipelas. One occurred very lately in Sir Patrick Dun's Hospital, in a woman, in whom the point of departure for the disease was the face. From this the erysipelas spread over the scalp, and then advanced downwards over the neck and shoulders. During its daily progress I pointed out to the students how precisely its outline at one side of the median line corresponded with that at the other. This coincidence was the more singular, for the boundary of the advancing erysipelas was at each side very irregular in form. I think, therefore, that more accurate observations on this subject will cause a change of opinion in the minds of some who at first opposed my views.

LECTURE LIX.

ERUPTIONS OF THE SKIN PRODUCED BY ANIMAL POISON.

I SHALL proceed to-day to the consideration of two affections resulting from animal poison, one of which has been but recently introduced to the notice of the medical profession : of the other I am not aware that there are any published cases in existence ; I allude here to glanders and button-farcy in the human subject.

The profession is chiefly indebted to the researches of Dr Elliotson for the first accurate account of glanders in the human subject—a disease which has now excited a very large share of attention here and on the continent ; you will find his essay in the 18th volume of the *Medico-Chirurgical Transactions*. Many other observations, published since Dr. Elliotson undertook the illustration of this disease, have established the fact, that the morbid matter secreted by horses labouring under glanders may communicate the infection to the human subject, and thus give rise to a loathsome, painful, and generally fatal disease. From the notices which I have been able to collect, it appears that glanders in man is of very frequent occurrence in Ireland ; so frequent, indeed, that I think the legislature is called on to imitate the wise example of the Prussian government, in placing glandered horses under the surveillance of the police.

Like many other animal poisons, that of glanders does not seem capable of affecting every individual indiscriminately : indeed, the average susceptibility must be small, for grooms and veterinary surgeons take few or no precautions in examining the diseased animals ; and yet the proportion infected, compared with the number exposed, is by no means considerable. That such persons exhibit great carelessness in examining glandered horses appears from the directions given in books on farriery, “that the finger should be introduced into the nostrils for the purpose of ascertaining whether certain spots suspected to be ulcers are so or not.” Now, when the viscid, gluey nature of the discharge from the nostril is taken into account, we cannot but conclude that this operation of introducing the finger into such a mass of vitiated and poisonous secretion would more frequently prove the means of infection, were the human constitution very susceptible of the poison ; for we are to recollect that the fingers of such persons are seldom free from scratches and abrasions.

I shall now read the following case of glanders in the human subject. It is one of extreme interest, and has been most faithfully and graphically detailed. It occurred in the Richmond Hospital, and has been communicated to me by Dr. McDonnell, one of the surgeons of that institution. You will find in it many points of resemblance to a series of cases translated from a German journal, and published in the *Medico-Chirurgical Review*.

“Patrick Wallace, a healthy muscular man, aged twenty, was admitted into the Richmond Surgical Hospital on the 6th October, 1836. It is stated that he had been in care of a glandered horse—driving, cleaning, &c.—and that he had been in the habit of drinking out of the vessel from which the

horse drank. It appeared also that he had an abrasion on one of his ears. On admission he had much the appearance of a person labouring under *cyranche tonsillaris*: he could only open his mouth to the extent of half an inch; this was the only uneasiness complained of. The left tonsil was very much enlarged, red, hard, and projecting towards the middle line; no fluctuation could be felt; there was a general fulness about the angle of the jaw, extending upwards nearly as far as the zygoma. The sub-maxillary gland on the same side was also enlarged and indurated. These symptoms had been ushered in by feverishness a few days previous to admission. He was ordered to have eight leeches to the throat, to be followed by a poultice, and a bolus composed of calomel and jalap.

"Next day the external swelling was found to be increased; greater difficulty of opening the mouth; the tonsil still hard and swollen. Twelve leeches were applied to the fauces, and the patient took the tartar emetic mixture of the hospital with sulphate of magnesia.

"On the 15th of October the disease is reported to be on the increase. Tonsil still hard, but no fluctuation; left side of the face greatly swollen; eye of the same side nearly closed from tumefaction of the lids; general inflammatory appearance over the cheeks, and great hardness of the tissues about the angle of the jaw of the same side, extending towards the chin; several circumscribed spots of redness, varying in extent from the size of a sixpence to that of a halfpenny, with irregular margins, scattered over different parts of the body; two pustules observable on the left leg.

"16th.—A vesicle containing a yellowish serum observable on the left tonsil; the same inability of opening the mouth continues; increase of swelling over the left side of the face; a small abscess has formed on the posterior part of the left fore-arm; some delirium during the night; three evacuations from the bowels. The tonsil to be brushed over with a solution of nitrate of silver; a blister to the fauces; the tartar emetic mixture to be continued.

"17th.—Some sleep during the night, interrupted by delirium of a low muttering character. Patient appears willing to answer questions, but cannot, from obstruction in the mouth. This, however, lasts but for a moment, and he then lapses into a state of incoherency. Mouth open to the extent of half an inch; left eye closed; considerable swelling of the left side of the face, which is indurated, hot, tense, and shining; all the glands on both sides of the jaw, but particularly on the left, are swollen and hard; same state of tonsil; nares dilated; breathing stertorous, somewhat hurried, about 28 in the minute, and interrupted by frequent sighs. Pulse very small, rapid, intermittent, and cannot be counted; skin hot; tongue furred, teeth covered with sordes. He complains of great thirst, but says he feels no pain; it is evident, however, that he feels great uneasiness in the joints and limbs when moved. There is, however, no swelling or redness of the joints; there is no discharge from the nostrils, nor is there any perceptible ulceration of the mucous membrane of the nose. No apparent affection of the absorbent glands in any other part of the body.

"During this period, vesicles and pustules of various sizes, and at various stages of growth, had made their appearance on different parts of the body, particularly on the back. They varied in size from the head of a pin to the section of an almond. In the first stage they resembled very minute vesicles, scarcely surrounded by any inflammatory border, and containing a limpid serum. In the second stage the serum was replaced by pus; there was a con-

siderable blush of redness around each pustule, which at this period became greatly increased in size. When one of the vesicles was punctured, the serum appeared to come from a single cavity under the cuticle: this operation did not produce any subsidence of the tumour, a considerable hardness still remaining in the cutis or beneath it, with a cavity in the centre in which the serum was contained. A number of *achores* existed in various parts, congregated together, and not much larger than the head of a pin. Those clusters were surrounded by *white raised margins*, having much the appearance of wheals, and about a line and a-half or two lines in breadth; between these margins and the *achores* there existed a line of redness. The whole taken together are rather of an oval shape. There also existed numerous inflammatory spots on the right shoulder, left arm, and other parts of the body. These were of a dark brown, approaching to a livid colour; when pressure is made on them the colour disappears, but returns immediately when it is removed. On running the finger over them, a small hard tumour was felt in the centre: the margins of these spots were irregular.

"On the 17th, the character of the disease became more plainly developed: at three o'clock, P.M. pus in considerable quantity was observed to issue from both nostrils. The patient was ordered to take the solution of chloride of soda internally, in drachm doses, three times a-day; and also a mixture composed of carbonate of ammonia, liquor æthereus oleosus, and camphor mixture. At five o'clock, P.M., he was found half out of bed, his head resting on the pillow; still able to express his wants; pulse not to be counted; legs and feet cold; breathing stertorous; numerous stigmata scattered over the surface of the body. The purulent discharge from the nostrils has ceased, but there is a discharge of mucus from the mouth, with considerable fetor of breath.

"Eight o'clock, P.M.—A copious perspiration has broken out over the body; face red, tense, shining, and very much swelled; swelling has now extended to the right side of the face; right eye nearly closed; can open the left better; a few pustules have made their appearance at the inner canthus of the eye. Pulse, tongue, and skin as in last report; delirium and muttering continue.

"Died at 4 o'clock, A.M., October 18th.

"On examining the body ten hours after death, the redness was found to have disappeared from the face; the glands about the left angle of the lower jaw as before mentioned; they were found matted to the surrounding parts. The areolar tissue covering the submaxillary and parotid glands was infiltrated with serum, and indurated; numerous depositions of pus were found in the tissue of the submaxillary and parotid glands. The brain was firm, but its ventricles contained a considerable quantity of fluid: the arachnoid membrane was opaque in many places; several patches of vascularity were observed on the pia mater. The lungs presented a congested appearance; numerous pustules were scattered over their surface—some separate, yellow in the centre, and surrounded by an ecchymosed border; others existing in clusters. They resembled, in every respect, those found on the surface of the body. The lining membrane of the larynx was very much inflamed, especially about its upper part and about the epiglottis. The inflamed parts in this situation were of a livid hue. There was some appearance of vesicles in the trachea, but this could not be satisfactorily ascertained. The bronchial tubes were filled with mucus; the stomach contained a quantity of yellowish green mucus—its lining membrane presented an ecchymosed and inflamed appearance. The liver was somewhat enlarged, and adhered by its inferior

margin to a few folds of intestine. The periosteum did not exhibit any appreciable deviation from the normal state."

One of the chief things to be noticed in the foregoing case is the variety of inflammatory affections observed in the skin, as the result of the introduction of an animal poison into the system. There was, in the first place, the general diffused redness of the face, then superficial inflammatory spots on the shoulders and arms, resembling erythema nodosum; in the next place, scattered pustules of various sizes, commencing in the form of a vesicle, which afterwards became a pustule surrounded by an inflammatory zone; and lastly, aches congregated together, and surrounded by an elevated white margin, within which there existed an inflammatory ring of a red colour. Another point worthy of notice is the state of the lungs and bronchial mucous membrane. The lining membrane of the larynx, particularly in the vicinity of the epiglottis, was inflamed and of a livid colour, and there was an indistinct appearance of vesicles in the trachea. But what was particularly deserving of note in the lungs was the existence of pustules on their surface, bearing the closest resemblance to those found on the surface of the body. It is not stated whether there was any appearance of vesicles or pustules in the nose, pharynx, or cesophagus; but we are told that the stomach was ecchymosed and inflamed.

The following case was witnessed by myself and Dr. Halahan, and seems more nearly allied to the variety of glanders termed button-farcy. The subject of it was a gentleman residing at Rathmines, an extensive proprietor of horses, and who, having originally graduated as a surgeon, exhibited much skill in the veterinary art. About the time of his illness he had some horses in his establishment labouring under glanders and button-farcy, to which he paid particular attention.

After having laboured for some days under considerable lassitude and derangement of the stomach and bowels, he was attacked on the 8th of July with rigors, followed by great thirst, excessive heat of skin, and pains in his limbs. The moment he felt himself attacked in this way he said he was sure that he had got some dangerous infection from the horses, and would never recover. He took some blue pill and colocynth, which produced a few dark and very fetid evacuations. On the 9th his pulse was 94, his urine very high-coloured, his thirst and feverish symptoms rather increased, and he suffered greatly from constant nausea and vomiting. A tumour now began to appear about three inches above the inner ankle of the right foot. He applied a poultice over it, but was obliged to remove it in a short time, in consequence of the pain occasioned by its weight. The tumour was about the size of half a walnut, of a dull red colour, tense, shining, and exquisitely painful. Its external aspect was peculiar, and might be compared to something intermediate between a boil and a spot of erythema nodosum. On the 10th another tumour of the same character appeared near the outer ankle of the same leg; and in this way the disease went on, tumour after tumour appearing on different parts of the body, with an increase of the feverish symptoms, until the 20th of July, when he was first seen by Dr. Halahan.

At this time several tumours had appeared on different parts of his body; there was one of an extremely painful character on his head, and he complained of great tenderness and pain along the right clavicle. His thirst was still urgent, his restlessness excessive, the slightest motion gave him exquisite pain, and sleep had completely abandoned him. He had endeavoured to regulate his bowels by purgative medicines, and had applied leeches to the

tumours and to the clavicle at various times, but without any decided benefit. There were eight or nine tumours on different parts of the body, of the character before mentioned, without any tendency to suppuration, and so exquisitely painful that he could only bear a single sheet over him. The inflammation about the clavicle, which was of a diffuse character, had extended up the neck and over the right shoulder; there was not much swelling, except about the clavicle; the colour of the affected parts was a peculiar dusky red. Immediately over the clavicle two vesicles were observable, filled with a transparent fluid. Three dozen of leeches were ordered to be applied over the clavicle and shoulder, and the patient was directed to use chicken-broth, beef-tea, and other light nutritious articles.

On the 21st, all symptoms are stated to be on the increase. His fever, thirst, and sleeplessness are undiminished; his tongue furred and dry; his teeth covered with sordes; his pulse small, weak, and rapid; his nausea and vomiting not so troublesome. He had received no benefit from the application of the leeches; the swelling and stiffness of his neck were increased, and he had some difficulty in swallowing. The erysipelatous surface of the neck, clavicle, and shoulder were lightly brushed over with lunar caustic, which gave the patient an agreeable sensation, and from which he stated that he derived much relief. This was repeated the next day at his own request, and with equal benefit; the difficulty of deglutition diminished, and for two days he went on pretty well.

On the 25th, there was an evident increase of fever: the tumours over the body and limbs were increasing in size and number, and his anxiety, restlessness, and sufferings were unabated; he had taken alternative doses of calomel and James's powder, and his bowels had been regulated by mild aperients and enemata. I saw him for the first time on the 28th. His pulse was then 98, small, and easily compressed; his thirst excessive; his restlessness and agony such as would strongly excite the pity of persons most conversant with scenes of human suffering. He had several tumours over different parts of his body, all exquisitely painful, and in their aspect something between boil and erythema nodosum. Some of them were hard to the touch; others, which appeared more advanced, were softer and had a boggy feel. There was, however, no appearance of any thing like suppuration. He was ordered sulphate of quina, chicken-broth, ale, and other light nourishment, and an opiate at night. On the 31st, a tumour appeared on the right side of his forehead, larger and more painful than any of the rest. Another of a similar character showed itself on the right clavicle, which had been previously affected. Shortly after their appearance, vesicles were observable on their surfaces, such as generally precede mortification in cases of anthrax and malignant carbuncle.

Next day he was evidently worse; his pulse was 108; his fever, pain, and restlessness unabated; and a miliary eruption began to make its appearance over his chest and abdomen. The vesicles now began to increase on the surface of the tumour; his fever and restlessness were aggravated; and his mind, which had been hitherto collected, began to wander. His restlessness was so excessive, that he could not remain for a moment in the same position; and being a person of much mechanical ingenuity, he had a set of pulleys constructed and fastened to his bedstead, so that he could move himself in various directions. His medicines and diet, with the addition of claret, and opiates at night, were continued as before.

On the 6th of August he was still worse; the tumour on the head continued to enlarge, and decided sloughing had taken place. The tumour on the clavi-

cle presented the same aggravation in appearance and character, and a fresh tumour had appeared on the back of his head. A pustular eruption now began to make its appearance over his body, chiefly over the abdomen and limbs; his symptoms became aggravated in every respect; the delirium and watchfulness increased; and he died on the 10th of August, about thirty-three days from the commencement of the disease. He attributed his illness to attending horses, four of which had died of button-farcy; and what is also curious, his nephew, who had also been engaged about the diseased animals, had fever of a typhoid character, with maculæ of a larger sort than usual, but ultimately recovered.

The symptoms of glanders in the human subject have been so fully detailed by Dr. Elliotson, Dr. Hutton,* and others, that it only remains for me to make a few observations connected with this subject. In the first place, it may be observed that most diseases produced by the deleterious effects of animal poison on the economy shew a tendency to cause not only fever, often of a malignant character, but also various forms of external disease, chiefly limited to the superficial glands, subcutaneous areolar tissue, and skin. In urticaria, small pox, and measles, the external disease is chiefly limited to the skin; in scarlatina we have often swelling of the parotid gland, with infiltration of the adjacent areolar tissue in addition to the cutaneous eruption; in syphilis, and cases of dissecting wounds, we have disease of the skin frequently combined with an affection of the superficial lymphatic glands. The same observation applies to typhus, many cases of which are characterized by an eruption of spots over different parts of the body, or by the occurrence of what are termed petechiæ.

On these matters I need not enlarge, as you are all acquainted with them; but that vesicles and pustules very similar to those observed in dissection wounds, and other diseases produced by the direct introduction of animal poison into the system, may arise from the action of morbid changes spontaneously occurring in the body, is a fact which admits of being proved, and opens to us a new and interesting field of inquiry. Thus, in the case of typhus, where the effect of pressure or some other accident has occasioned bed-sores of a bad character, and even where there are no bed-sores present, I have on several occasions seen low secondary fever produced, and have observed vesicles or pustules appear on the skin, similar to those described by Mr. Colles as accompanying the fever of dissection wounds. An example of this occurred some time ago at this hospital, and you have recently witnessed another in the case of a young man recovering from typhus.

It might be argued that the secondary fever and eruption in such cases arise from the absorption of morbid matter into the system, and I am willing to admit that there is some colour of argument for this statement, where the patient labours under bed-sores of a bad and gangrenous character; but that this explanation is not the true one appears from the case of the young man to which I have alluded. He had no bed-sores to account for the secondary fever and eruption; and we can only explain the circumstance by supposing that it is the result of a poison generated in the system during the course of fever. This is particularly deserving of notice, as I am not aware that any author on typhus has noticed this symptom, or pointed out the circumstances under which it occurs.

The same phenomena is occasionally observed, where, in consequence of ex-

* Reports of the Dublin Pathological Society.

ternal injury, diffuse areolar inflammation has taken place. Thus, several years ago, a woman was admitted into the Meath Hospital, who had diffuse areolar inflammation in consequence of receiving a kick on the chest. After a few days, Colles' pustules appeared on different parts of the body, and she died with symptoms of croup. On dissection, the croupy symptoms were found to depend on an eruption of vesicles filled with opaque serum over the lining membrane of the larynx and trachea. Something analogous to this was observed in the case of Wallace; and the coincidence is further strengthened by the frequent occurrence of disease of the lining membrane of the larynx and trachea in many other febrile affections, accompanied by cutaneous eruption—as small pox, measles, syphilis, and scarlatina.

Another point which is deserving attention with reference to the phenomena of external disease, in cases where animal poisons have been generated in the system or arisen from infection, is the occurrence of tumours in different parts of the body, partaking of the characters of furuncular inflammation or carbuncle, and running through a somewhat similar course. These tumours formed a very prominent feature in the case of Wallace; and in the gentleman who laboured under button-farcy they constituted one of the most important symptoms of the disease. We also observe something similar to this in that form of venereal which Mr. Carmichael terms tubercular, and which is characterized by the appearance of small, hard, dark-red tumours on various parts of the body, which exhibit a very imperfect tendency to suppuration, and frequently give rise to sores of a bad and unfavourable character.

During the spring of this present year (1848), I was sent for to the north of Ireland to see a gentleman, whose case affords an excellent illustration of the remarks I have now been making. He was a large heavy man, of middle age, in the habit of living well, but usually in the enjoyment of good health. In the month of February an eruption of herpes zoster appeared on his chest over the region of the heart. This was treated antiphlogistically; and amongst other remedies he was placed in a warm bath, the effect of which was to cause faintness, irregularity of the pulse, and acute pain in the heart. A large blister was now applied over the præcordial region; *this sloughed and was afterwards healed with very great difficulty.*

When I first saw him in May he was suffering from a peculiar sharp pain in the chest, with a feeling of tenderness, yet *numbness*, of the surface. So marked was this last symptom, that he did not feel the dressing of an issue which had been inserted there. He also complained of intense neuralgic pains shooting through the chest if he attempted to lie on the left side. Colles' pustules had appeared on various parts of the body; these were followed by successive crops of boils, together with large carbuncles. From all these he continued to suffer for four months after the sloughing of the blister, and eventually the herpes reappeared in its original situation. I saw this gentleman lately in consultation with Sir Philip Crampton; his health was much restored, but he still suffered from occasional palpitations with feeling of faintness, and the numbness of the side continued. At Sir Philip's suggestion he was ordered to take the cold infusion of bark with magnesia, but neither it nor any other remedy had the least beneficial effect, yet by the lapse of time he seems to have, up to the present, gradually improved.

Now, in this case, a very important question arises as to the generation of a poison in the system from the effects of a blister. Comparing it with the re-

marks I have already made in this lecture, I think that we can fairly take this view, and thus account for the appearance of Colles' pustules, the boils, anthrax, &c., which in some instances continue to come out during even years. The chief practical deduction, however, which I wish to draw is, *that where such a tendency exists, you should beware of the use of liniments, blisters, the insertion of issues, &c.*

There is a circumstance in Dr. McDonnell's case which I have brought before you, that deserves some share of attention ; I allude to the white elevated margins, like wheals, around the redness which more immediately encircled each cluster of achores, and which we are to look upon as in a less advanced stage of its progress, being as it were only the first stage of the latter. It is a curious fact, that on many occasions a preternatural degree of whiteness precedes the redness and congestive purple hue which usher in mortification. This is generally known in the case of the nose when frost-bitten, and which always appears preternaturally white in the commencement. Something analogous to this was observed in some cases of bad typhus treated in 1826 and 1827. The nose sometimes assumed a peculiar white colour, and not unfrequently exhibited a tendency to mortification. When first seen, it had a preternatural whiteness, and looked very like a nose made of white wax ; in the course of a few hours it changed to a purple red, and exhibited symptoms of approaching gangrene.

Again, in urticaria, we often see some portions of the inflamed skin assume a white colour, and the same occurrence may be noticed likewise in the wheals caused by nettles or the stings of bees. In general we connect the idea of integumental inflammation with the appearance of redness ; and this phenomenon is explained on the hypothesis that a preternatural quantity of blood is circulating in the inflamed parts. How, then, are we to account for the facts that I have mentioned ? To what cause are we to attribute the co-existence of increased vascularity and the remarkable whiteness or pallor of the parts—a state displayed in a very remarkable manner in *phlegmasia dolens* ? I think the explanation is not very difficult when we recollect that the capillary vessels of the white tissues of the body contain no red blood in their healthy state. It is easy to conceive that in certain stages of inflammation, the quantity of serous or white blood circulating in any of these tissues may be suddenly much increased, and that this increase may be accompanied by all the phenomena of inflammation except redness. In certain cases, as *phlegmasia dolens*, the colour is permanently white ; in other cases the white is exchanged for redness when the inflammation has increased in intensity ; but perhaps we should not use this expression, for the *phlegmasia dolens* proves that a *white inflammation* may be quite as intense as *red inflammation*.

The following case is an example of the occurrence of *purulent vesicles* :—A woman named Green was admitted into the Meath Hospital, with erysipelas of the head and neck, accompanied by high cerebral symptoms, the consequences of a contused wound on the scalp. On the second day of her admission we observed a vesicle of a peculiar character on the right hand. It was about the size of a small pea, full of pus, and surrounded by a base of a deep red hue about the size of a shilling. Between the shoulders, two more vesicles exactly like the first were discovered. The erysipelas and head symptoms gradually disappeared under the action of mercury, and the vesicles burst, and left an encrustation which soon fell off, leaving a newly-formed and healthy cuticle underneath.

A day or two after the appearance of the vesicles on Green, a girl who had been in the hospital about six weeks, labouring under general debility, palpitations, and excessive action of the heart, with extreme irritability of the stomach, depending on amenorrhœa of seven months' duration, presented on the forefinger of her left hand a well marked vesicle, of the same size and character as those noticed in Green's case. Though she had not a good number of boils in other parts, she had only the one vesicle, which also burst, scabbed, and the crust fell off, leaving the cuticle underneath quite healthy.

In the same ward with Green was another girl named Scully, affected with symptoms the consequence of suppressed catamenia, who was also attacked after Green with an eruption of the same kind of vesicles on both hands. At first the parts became red and itchy, then small vesicles with serum appeared, which, when they attained the size of a small pea, became filled with pus. Each vesicle was surrounded by a deep red base. Some of them were as large as those of pompholyx. One very large vesicle was observed to have one half distended with pus, and the other with serum. They were extremely itchy, and the red base was very painful. These vesicles extended over both arms up to the elbows, continued longer than in the two preceding cases, and then terminated in the same manner. But in this instance their disappearance was immediately followed by inflammation and abscesses of the left mamma, producing great suffering, and attended with painful periostitis of both shins. Under appropriate treatment she eventually recovered.

Bearing some analogy to the foregoing, and requiring somewhat similar treatment, is another class of cases, in which, after some slight injury, and sometimes without any apparent cause, persons are attacked with local affections, attended with fever, remarkable sleeplessness, and an eruption of those pustules which were first described by Mr. Colles. I shall read here for you the notes of an interesting case of this description which I received from Mr. Trenor.

A lady, aged about thirty, of dark hair and pale complexion was visited by Mr. Trenor in October, being at that time three days ill. She had suffered some time previously from a cutaneous affection of the hands, which, from the appearance of the skin and the description given by the patient, was supposed to be psoriasis. Three or four days before her illness she had pricked her finger with a needle, but did not pay any attention to it, as a similar accident had often happened before without any consequent inconvenience. On examination, three pustules, or rather vesicles of different sizes, were found on the inside of the finger and wrist, and there was an indistinct blush on the inside of the arm, which, however, the patient thought to be caused merely by the weight of the limb, as she lay on her side. The fore-arm was intensely painful, and the slightest touch excited extreme agony. The arm was also tender, and in the axilla was a small hard tumour, exquisitely tender to the touch, and from which the pain shot inwards over the anterior and upper part of the chest. The affected arm was powerless, and very painful on motion. Her pulse was 100; tongue white and moist; bowels opened by medicine; skin not differing much from the normal temperature; but she was extremely restless, and had not slept for the last two nights. She was ordered to take three grains of calomel and two of the watery extract of opium at bed time, and an aperient draught the following morning: the tumour in the axilla was carefully poulticed. On the following day the pain of the limb continued, but she had rested much better. The tumour in the axilla was stationary. The calomel and opium were repeated in the same quantity

night and morning, and she took a quina mixture every third hour. Next day she appeared much easier, and, under the same treatment, combined with occasional purgatives, she improved rapidly, and in the course of four or five days required no further treatment, except an opiate at bed-time, and the quina mixture, which was continued for some time longer. The painful tumour of the axilla gradually disappeared of itself, for the local applications were given up at an early stage of the disease, being more inconvenient than serviceable.

Here, you perceive, a train of severe constitutional and local symptoms arises from an apparently trivial injury, and the patient is attacked with fever, sleeplessness, and exquisite pain of the affected limb, accompanied by a slight blush of erysipelatous redness. There was also the same loss of muscular power which we observed in the cases of swelled leg after fever, showing that the extremities of the muscular as well as the cutaneous nerves were engaged. Now, in this instance, Dr. Trenor took the same view of the case as I did in a somewhat similar one which I am about to detail. He looked upon the irritative fever, the sleeplessness, the agonising pain, and the pustules as symptoms not to be treated by bleeding, or leeches, or cold applications, or tartar emetic and nitre, but by tonics, opiates, and a mild, nutritious diet. He gave calomel or blue pill, with full doses of opium and quina, and ordered her to take chicken-broth and beef-tea. During the course of four days she took fifteen grains of opium without any affection of the head or derangement of the stomach, and nine grains of calomel and a drachm of blue pill in the same period without any appearance of salivation. I have no doubt that in this instance the free use of opium tended not only to produce sleep and to relieve pain, but also to diminish the constitutional irritation on which the eruption of pustules seemed to depend.

The next case of this affection deserving of notice is that of a French sailor boy admitted into Sir Patrick Dun's Hospital, labouring under a violent and dangerous form of fever, apparently typhus, but wanting the usual eruption of maculæ. His pulse was but little accelerated at first, but he was very weak, restless, and sleepless, and complained of exquisite pain in the side of the neck extending over the whole surface of the right side from the angle of the jaw to the tip of the shoulder. This region was very tender, and exhibited a diffused swelling and fulness with very slight redness, the latter only visible towards the centre. There was pain in the axilla, with incipient inflammation of one or two glands; and the right side of the chest, though neither red nor swollen, was very painful on pressure. Immediately after detecting the existence of this diffuse inflammation, I remarked to the pupils that this was a case likely to favour the development of Colles' pustules, and accordingly I examined his skin and found two vesicles, each as large as a shilling, on the fingers of the right hand; one of these vesicles was formed round a light superficial wound on the knuckle of the middle finger.

Here it was not easy to determine whether the diffuse inflammation of the neck was a consequence of the wound on the knuckle, or whether the former, arising spontaneously, had generated in the system a morbid poison, which had reacted on the integuments around the wound, and formed a vesicle surrounding it. I am inclined to adopt this latter opinion, for I have seen more than one similar case proving that where a poison is at work producing a tendency to cutaneous eruption, the existence of a small wound in the skin generally determines the morbid action towards that point of the surface, and causes, when any of Colles' vesicles are formed, the formation of one around the

wounded spot. Thus in a grocer, ill of typhus, whom I lately visited along with Mr. Bourke of Camden-street, one of these vesicles formed round a sore on his knuckle inflicted by a sharp scoop prior to the commencement of the spotted fever. Here the fever evidently engendered the poison, while the wound determined its action on the skin to a particular place: the same is observed in psoriasis, in venereal cachexy, and in small-pox. While the constitution labours under any of these diseases, injuries of the skin frequently call forth the specific cutaneous affection of the injured part.

But to return to the case of the French sailor.—At first the diffuse inflammation of the neck was not accompanied by much fever, but in a few days suppurative fever set in, and circumscribed swelling was observable in the centre of the inflamed part. After a short time this was opened by Mr. Houston, and a large quantity of pus evacuated; some improvement in his general health took place, and the peculiar distress produced by the diffuse inflammation in the neck, arm, and side subsided; the agonizing tenderness had gone, and he seemed to be fast improving, notwithstanding the profuse discharge of matter from the opened abscess, when suddenly he got acute hectic fever, rapid emaciation, and a sunken countenance, with cough and shortness of breath; a moist crepitus was now discovered in the upper lobe of the right lung, just below the seat of the abscess. The case now assumed a most hopeless appearance, for in the exhausted state of our patient we had but slender hopes of his recovering from this pneumonia. The question occurred, What caused the pneumonia? Did it arise from a communication between the abscess at the lower part of the neck and the upper lobe of the lung, or was it phthisis rapidly developed in a constitution run down by previous illness, or was it simple and self-existent pneumonia? These are questions which it was not very easy to determine, and yet how important was the determination with reference to prognosis!

If the pulmonary affection depended on an extension of the inflammation from the neck to the upper part of the lung, there was a chance of recovery; but if it were phthisis, the boy was lost. I declared to the class my conviction that it was phthisis, and for a few days the boy seemed hurrying to the grave, when suddenly the abscess in the neck dried up and became consolidated, and at the very same time the pneumonia in the lung just below the abscess disappeared as rapidly as it had risen. All fever subsided, and the boy, getting rid of his pectoral affection, was at once out of danger. I cannot explain the remarkable and un hoped-for termination of this affection, except on the supposition that the moist crepitus in the lung and the pectoral symptoms originated in a suppurative inflammation suddenly extended from the lower part of the neck to the contiguous portion of the lung, and as suddenly ceasing when the abscess healed. I have dwelt on the particulars of this curious case, as I have neither seen nor read of any thing similar.

An old man from Bray, admitted into the clinical ward of Sir Patrick Dun's Hospital, exhibited extensive gangrenous erysipelas on the inside of the right knee and thigh, caused by a moxa applied for the cure of pain in the knee. In a few days patches of diffuse inflammation, ending, some in sloughing, and some in suppuration, appeared on his hand and other distant parts, and several of Colles' vesicles developed themselves on his trunk. Shortly after, another man, young and athletic, who had been bled for pneumonia, and in whom the wound in the vein had caused ill-conditioned diffuse inflammation at the bend of the arm, was admitted under my care. In him, too, Colles' vesicles formed in various parts. You may gather from the

numerous examples we have witnessed, that these vesicles or pustules constitute a peculiar feature accompanying many varieties of disease, which agree but in one circumstance, the formation of a cutaneous eruption caused by the operation of a morbid poison, generated in some cases in the system itself, in others introduced from extraneous sources. Among the most frequent causes that give rise to the evolution of this poison in the system is diffuse inflammation, no matter how produced—whether by a bruise, a burn, a punctured wound, a bed-sore, or the poison of glanders. You may also remark that the cutaneous affection thus caused bears some analogy to exanthematous diseases of a malign character, and marks a state of the system requiring wine, opium, and quina. In most instances the eruption is either pustular or vesicular, but in some it assumes the appearance of small patches of diffuse inflammation, or of ill-conditioned furuncles.

I shall now conclude with an account of the case of Dr. Orpen of Cove, who suffered from an attack bearing certainly a close affinity to the class of diseases I have described in this lecture. I read you his own report of his case from a letter he addressed to me :—

“I would feel much obliged by your giving me your opinion on a very painful and troublesome furuncular affection I have been subject to for some time. The first attack I had of it, which is nearly five years ago, came on my hands and wrists, and I attributed it to some matter that got on my hands while dressing a case of phlegmonous erysipelas of the scalp, attended with *profuse* suppuration. That attack lasted three or four months. I had another severe attack last year, after attending a bad case of sloughing phagedæna of the penis, scrotum, and groin, from primary syphilis. I was not aware that I had any cut or scratch on my finger at the time; I used the greatest caution in touching the sore, and did not cut myself at the time; still I had a very painful eruption of boils afterwards, which lasted three months. I had a third attack last summer, and am now suffering from the fourth.

“The eruption is more a purple hard tubercle than a pustule or boil; in some very bad ones they are preceded by a small vesicle, with a white areola about the size of a sixpence or shilling, in which case there is some deep suppuration afterwards; but they generally suppurate very slowly and imperfectly.

“I intended to have consulted you about it when in Dublin, but as I was free from them at the time, I did not wish to trouble you; but this eruption is now becoming more frequent, and appears to be brought on by any thing that irritates the skin; a hard ride on horseback is generally followed by several of them. I have tried various remedies, such as mercurial alteratives, with soda; sarsaparilla, and Brandish’s solution; and quina (which gave me a headache); I have frequently cut them across with a scalpel, or applied caustic to them, which prevents *some* from suppurating. I was advised to use calomel and James’ powder in small doses, with spare diet, which relieved me at the time, but the eruption returned soon after. I was also lately recommended tonics, with porter and nourishing diet; which latter—I mean the porter and full diet—generally bring on headache, so I am afraid of them.

“I have also consulted your most valuable work, expecting to find the same consolatory advice that I have so frequently had from it in fevers and other cases, but I did not find any case exactly corresponding to my own. I have, therefore, taken the liberty of applying to you directly, and laying this

statement of my case before you. Let me know particularly as to diet. I used to be very dyspeptic, but of late I feel myself in better health and spirits, only that I am so much annoyed by these *boils, pustules, or tubercles*. My pulse used to be 75 to 80; it is now 60."

I advised Dr. Orpen to try the following prescription, recommended by Dr. Erichsen in the *Medical Gazette* of November 14th, 1845:—Liquor of caustic potash, one ounce, and half an ounce of bicarbonate of potash, in seven ounces of water. One table-spoonful to be taken twice a day in half a tumblerful of nettle tea, and the dose to be gradually increased until an ounce is taken at a time. Dr. Orpen persevered for a considerable time in the use of this remedy, occasionally intermitting it, and was at length completely restored to health. He used, by my advice, a generous, but not heating *diet*.

With respect to inoculation of the system by means of morbid animal matter, I have seen frequent instances of it in cases where such inoculation was new to me. A young lady had erythema nodosum of her legs, some of the tumours of which, being neglected and irritated by friction, ran into superficial pustules. Her mother opened some of these with a needle, and, during the operation, a drop of the fluid fell upon the back of her middle finger. In ten minutes after she felt a tingling and painful sensation in the unbroken skin of the part, which she had merely wiped and not washed, being entirely occupied with her daughter. The spot became inflamed, and next day an angry pustule, exactly similar to those on her daughter's legs, formed on the finger.

Another remarkable example occurred in my practice while this lecture was being printed. A young lady had been directed to apply to her head white precipitate ointment, to destroy some pediculi which she had perceived in her hair. Instead of it, the apothecary, by mistake, sent her tartar emetic ointment: this was well rubbed into the scalp by her maid, and the effect of it was to produce violent inflammation, followed by a large crop of pustules and copious purulent discharge. The pustules afterwards appeared on various parts of her body, and continued to come out for several months. Her mother, also, who had a sore from the burn of sealing-wax on her finger, having dressed her head, became affected in a similar manner, pustules and boils breaking out over her body, and continuing to reappear, in spite of every sort of treatment, for many months.

LECTURE LX.

PSORIASIS.—POMPHOLYX DIUTINUS.—TINEA CAPITIS.—PRURIGO.

THE next disease of the skin to which I shall call your attention is illustrated by the case of Ellen Farrow, who has been for a considerable time labouring under extensively diffused psoriasis. She was admitted about the beginning of last November, and we are now come to the 10th of December; so that she has been a patient here for nearly six weeks. Her disease is of better than two years' standing, and the eruption covered almost every part of the surface of the upper and lower extremities, the trunk remaining unaffected. The patient, you perceive, is a fine healthy country girl; and though the complaint has lasted so long, her system does not seem to be in the slightest degree impaired—appetite, digestion, and sleep are perfectly good. Now, on examining her soon after her admission, you will recollect that I told you that the duration of the disease, the absence of constitutional irritation, and of irritation in the parts affected by psoriasis, all contra-indicated a mode of treatment which frequently proves highly useful, namely, the antiphlogistic. If called to a case in which the disease was recent, and attended with heat of skin, redness, and itching, I would bleed, leech the affected parts, and put the patient on a spare diet. Even in some cases of a chronic character, this treatment may be employed with great advantage. Here, however, the state of the patient was such as not to require antiphlogistics, and accordingly we put her on the use of Fowler's arsenical solution. By the way, when you give this remedy in private practice, where patients or their friends are very curious in scanning your prescription, you may, in order to prevent alarm, or have the action of the medicine interfered with, write on your prescription, "*Liquor mineralis Fowleri.*"

I mention this case of Farrow's chiefly for the purpose of showing the extent to which the arsenical solution may be carried. Bear in mind I do not mean to boast of the quantities of medicine my patients swallow. Some persons appear to think that there is something very brilliant in prescribing enormous doses: I should, however, be very sorry to make such experiments. Arsenic is a very powerful remedy, and its effect on diseases of the skin can be amply secured by moderate doses; where these fail, it is very often from not continuing the use of the remedy for a sufficient length of time. Latterly this girl has taken ten drops of Fowler's solution three times a day; and, as she is getting well, I do not intend to increase the dose. We began with three drops three times a day; after a few days this was increased to five, and then to seven drops three times daily. She then began to take ten drops three times a day; but after a few days, having got an attack of shivering, followed by symptoms of feverish excitement and herpes labialis, we stopped the arsenic for five days, and then began to give it again in small doses, which were gradually increased until we came to the quantity she is taking at present. Whenever you have a patient under the use of arsenic, you must never omit

making daily inquiries as to the state of the head and stomach: if the patient complain of gastrodynia or nausea, if there be pain or giddiness of head, or if, these being absent, a state of feverishness or general nervous excitement supervenes, it is a proof that the remedy has been pushed sufficiently far, and under such circumstances you should suspend or give up its employment. In this case, being unwilling to give up the use of arsenic, as it appeared to be curing the patient, I merely suspended it for a few days, and then had recourse to it again. In order, however, to prevent it from acting unfavourably on the stomach, I have latterly prescribed it in the following form:—

R Liquoris Arsenicalis, min. x.
 Aque destillatæ, f3j.
 Tincturæ Opii, min. x.
 Spiritus Lavandulæ compositi, f3ss.—Fiat haustus.

This appears to agree very well with the stomach; and as she is improving very rapidly, I intend to continue it for some time without increasing the dose.

The only other point worthy of remark in the case is, that we observed in it a phenomenon connected with the state of the skin, such as usually occurs when a patient is using sulphur or sulphurous waters for the cure of chronic cutaneous affections. After they have been taking these remedies for some time, they experience a slight exacerbation of symptoms, and complain that the eruption is growing worse. This, however, should never induce you to give up the remedy without further trial; for this temporary aggravation generally precedes the disappearance of the disease.

The following case is an admirable illustration of the advantage derived from treating diseases of the skin on constitutional principles:—

Early in the year 1846, Mr. Pakenham, of Henry-street, consulted me respecting a young clergyman who was annoyed by a redness occupying the skin of the upper lip. This redness was permanent, but liable to certain remissions and exacerbations, dependent on the state of the weather or the effects of diet. It was accompanied by a slightly elevated state of the engaged portion of the skin; but it had not the elevated pimples of acne, or the suppurating tubercles of sycosis. It might, perhaps, be termed psoriasilabialis, and when much inflamed, secreted an increased quantity of epidermis. It annoyed him much, and prevented him from using his razor with comfort. He was very anxious to have this disfigurement removed, and had made use of many remedies, both general and topical, without benefit. As the disease had lasted several years, and had resisted all the remedies which had been tried, both by London physicians and myself, I advised him to go to Aix-la-Chapelle for the purpose of using the sulphurous waters. The German physician whom he consulted there considered that the disease depended upon a strumous origin, and directed him not to use the waters, but to try a course of cod-liver oil. This remedy agreed well with his constitution, and after some time he was able to consume two ounces of it daily, which, in about two months, effected a complete cure. That the German physician took a correct view of its nature I have no doubt, as several members of my patient's family have suffered from scrofulous diseases. It may be well to mention that the cod-liver oil was made into an emulsion with syrup, mucilage, and orange-flower water, in which shape it is comparatively palatable.

Since this occurrence I have often had success in the treatment of local diseases of the skin which I suspected to depend on a scrofulous taint, and have

thus cured obstinate cases of sycosis, impetigo, and psoriasis. I may add that, in all such patients, I have combined with the internal remedy the insertion of one or more issues at a distance from the part of the skin affected; and in sycosis I follow Alibert's plan of maintaining an eruption on the arm with tartar emetic.

In certain diseases of the skin, particularly those allied to psoriasis, I have found the use of gelatine baths of the greatest possible service. Two gallons of size may be added to each warm bath for an adult, or, if the odour of even fresh size is objectionable, a similar quantity of isinglass, or calf's foot jelly may be used. A course of such baths, particularly in summer, will be found a most valuable auxiliary in curing dry and scaly diseases of the skin.

A patient of mine was affected with psoriasis of the scalp for several years. It was extensive but not severe, and did not interfere with the growth of the hair. He sought no remedy until it encroached on the forehead, and thus disfigured him. He was cured by using hot air sulphur baths for fifteen or twenty minutes daily for a month, and applying the following ointment to the roots of the hair every night at bed time: Biniodide of mercury, one scruple; prepared lard, one ounce; oil of lemon, five drops. An oil-silk bathing cap was worn at night, and the ointment was not washed out in the morning.

In cases of psoriasis of the scalp and ears, back of the neck and forehead, cases which are often of an extremely obstinate and troublesome character, and occur frequently in young females, I have seen Sir Philip Crampton adopt with success the following treatment:—A sixteenth of a grain of corrosive sublimate, dissolved in half a drachm of spirit of wine, is to be taken three times a-day, in four ounces of a mixture composed of equal parts of infusion of yellow bark and decoction of sarsaparilla, together with Donovan's Liquor Cinchonæ, and the fluid extract of sarsaparilla. Along with this internal treatment, he advises the application to the parts of dilute citrine ointment, with the addition of about one-third of the unguentum ceræ albæ. The above internal remedies are often useful in scrofulous ophthalmia. The late Dr. Colles likewise used the corrosive sublimate in this affection, both internally, and as a lotion externally, dissolved in spirits of wine.

The effect of nitrate of silver in the case of psoriasis at present under treatment, is well worthy of your attention. You may recollect that when this patient, who is a strong and otherwise healthy man, was admitted seven weeks ago, he presented a specimen of *psoriasis diffusa* of the worst character.

His scalp, extremities, and trunk were almost totally covered by its inflamed and scaly patches, of all sizes and in all stages. It is particularly to be remembered, that scarcely a day passed in which new spots of the disease did not make their appearance, as was obvious from the great number of minute and recently-formed patches which were intermingled with those of older date.

Having previously cleared away as many of the scales as possible, by means of ablutions with yellow soap and water, and having thus, to a certain extent, exposed the diseased portions of the skin, I directed all the spots in succession, and also the skin immediately around them, to be rubbed with nitrate of silver, the surface of each being first rendered slightly damp, in order to render the application more active. The proper application of the caustic to such numerous spots, and to so extensive a diseased surface, was a business which required much attention and trouble; which, added to a fear that this process might excite excessive cutaneous irritation, if too generally and too suddenly applied, prevented us from touching all the spots before the end of the fifth or sixth day. The effect of this treatment has been an amendment

more rapid than I had anticipated. The newly-formed and recent patches of the disease yielded to the first application, and presented, when the black crusts it formed had fallen off, a healthy surface. The older and more extensive spots, as might have been expected, proved much more obstinate. In every case, however, their further increase in size has been prevented, and most of them have finally yielded to repeated applications of the caustic. One very large and inflamed spot on the fore-arm was first leeches and poulticed. Judging from the progress already made, I think that the cure will be completed about the end of the ninth week. It remains to be seen whether it will be permanent. One circumstance is worthy of remark—that the tendency to produce new patches of the disease, which existed when this patient was admitted, has in a great measure ceased, and latterly very few have been generated. On the whole, then, this method deserves a further trial, and in recent cases it may perhaps even succeed in altogether stopping the progress of the disease. Of course I do not mean to recommend it to the exclusion of the other modes of treatment recommended by Dr. Duffin and M. Biett, and which you have so often seen successful in this hospital: I merely propose it as a useful adjuvant in obstinate cases.

It has been stated by Dr. Duffin, in his essay on cutaneous diseases, that scaly eruptions are not contagious. The same opinion is likewise maintained by Bateman. A fact I had an opportunity of observing seems, however, to prove that scaly diseases may become communicable by contact under certain circumstances. A gentleman of cleanly habits, for several years resident in one of the healthiest situations of this city, was subject to psoriasis palmaris for many years previously to his coming there. This I mention to show that the disease did not originate in anything connected with the house or its locality. I was afterwards called to see his butler, who had contracted an extensive psoriasis on the back of his hand, and which he himself attributed to his wearing of his master's old gloves. This fact did not make much impression on my mind until about two months afterwards, when I found that the housemaid in the same family had also contracted the disease, in the form of scaly spots of various sizes on the forearms. This she attributed to contact with her master's linen, making his bed, &c. The housemaid and butler, it is necessary to mention, were not relations.

The most extensive case of psoriasis diffusa I ever saw occurred in a boy after sleeping many nights without a shirt on the wool termed *pitch-marks*—the wool of the sheep in which the owner's initials had been stamped with pitch, and bought by the poor for various purposes, such as stuffing cushions, &c.; in this case I am doubtful whether to attribute the complaint to the irritating qualities of such wool, or to its being, perhaps, in part taken from sheep labouring under disease of the skin. That cutaneous diseases may be communicated by other animals to man is well known. I myself have seen two instances in which an entire family of children were infected with a disease resembling the itch, from playing with a mangy dog.

The case of the boy who was admitted into the hospital in the beginning of last September, labouring under a disease of the skin called *pompholyx diutinus*, is well worthy of your attention. This boy was fourteen years of age at the time of his admission, and although his frame was slender and his constitution apparently delicate, yet, with the exception of the cutaneous disease, he had enjoyed for many years an uninterrupted continuance of good health. The eruption had lasted five years; during which time the succes-

sion of bullæ had seldom ceased. When he came under our observation, the bullæ occupied, in very considerable numbers, not only the face and extremities, but also the trunk, and were in various stages of progress—some healing after having burst, some of a large size and unbroken, while others were small and recent.

This disease is well described by Bateman, who makes some judicious remarks upon its treatment; but I think that Biett's description is not only fuller but more exact. From the observations of these authors, however, you cannot form an idea of the occasional severity of pompholyx diutinus, of which I have seen two cases in young men, where the irritation and suffering produced by the constant exposure of large portions of skin denuded of epidermis had operated most unfavourably on the general health, almost banishing sleep, and reducing the patients to a state of great debility. As these cases had proved extremely obstinate, and had not yielded to any of the modes of treatment recommended by Bateman and Biett, my confidence in their plans was naturally shaken, and I determined, when opportunity offered, to have recourse to a new method of treating this complaint.

When this boy, therefore, came under my care, instead of using either the constitutional or local remedies which I had tried before, I directed all the bullæ to be opened with a lancet, and the denuded surface of the corium to be touched with a stick of nitrate of silver. The caustic was applied also to the skin around each bulla for the breadth of a line; and the nascent pimples which indicated the formation of future bullæ were all subjected to the same treatment. He was then washed and got clean linen. This single application of the nitrate of silver had not merely the effect of entirely destroying the morbid action in the portions of the skin which were at the time affected, but, what is very remarkable, no fresh bullæ have since made their appearance, although nearly four months have elapsed. The only part of the surface which required a repetition of the process was the palm of the hand, where the thickness of the epidermis rendered it difficult to expose the diseased surface of the corium to the full action of the caustic.

Although the results of a single case, however successful, do not justify us in concluding that the method of treatment adopted will prove equally efficacious in eradicating every similar eruption, yet the benefit obtained was so striking, that we may with confidence consider nitrate of silver as a useful addition to the therapeutical agents already in use for the cure of this disease. The fact that an affection of the skin so general, and of such long continuance as to merit the name of a constitutional disease, should be cured by local means alone is not so easy to explain. As the fluid generated within the bullæ is said not to be contagious, we must refer the cure to the simultaneous destruction of all the parts in a state of morbid action—a morbid action which would have been otherwise propagated to other parts of the skin by the sympathy of continuity, as it is termed.

In the 15th vol. of the *Edinburgh Medical and Surgical Journal*, I observe that, in a paper upon *yaws*, Mr. Mason says he has derived great benefit from the direct application of nitrate of silver to the yaw tubercles; and in one recent case, this treatment being continued for a few months, "the papulæ disappeared, and no other tubercular yaws were formed." It appears from a subsequent experiment that although the disease was thus, as it were, cut short, yet the patient's constitution was not secured from a future infection, as it would have been had the yaws been allowed to run their usual course. Here, therefore, we have another example of a local application to the skin

preventing the development of, and as it were suppressing, a constitutional disease.

We have lately had in the hospital a disease of the skin which, in the form of eruption and in being communicable by contact, bears a striking resemblance to yaws : I mean *button scurvy*.

This case presented one fact which is worth bearing in mind, in comparing button scurvy either with the yaws, sибbens, or syphilis. While under the influence of an alterative course of mercury, which had been continued long enough to produce an evident action on the gums, the patient's right eye became red and inflamed, and, in spite of local depletions, a violent attack of iritis was formed, and only yielded to salivation rapidly excited by large doses of calomel. The salivation produced a speedy diminution in the button scurvy, and soon cured it also.

I have next a few practical observations to make upon the dry, scaly variety of tinea capitis, which has been so well described by Plumbe, in his *Practical Treatise on Diseases of the Skin* ; 4th edition, pp. 139, 140.

This species of ring-worm or dry tetter is very contagious, and sometimes makes its appearance in one or several spots on the scalp, face, or other parts of the skin, but seldom is observed on the lower extremities or abdomen. It scarcely ever remains for any great length of time fixed in any part except the hairy scalp, where it is apt to locate itself and become permanent, its duration often extending through a great number of years, or even a whole lifetime. I recommend your attention to the following points :—

1st. When the disease is of long standing, always insert an issue in the arm before you attempt its cure. I have seen water on the brain, and other fatal consequences, from the neglect of this precaution.

2ndly. If this disease has clearly originated from contagion, and no other evidence of derangement of the general health can be detected, we must not, from the mere presence of the cutaneous affection, infer a constitutional taint, and must avoid the common error of making the poor children undergo a course of alterative medicines.

3dly. This affection, originating in contagious matter applied to the skin, cannot, like some varieties of lepra and psoriasis, to which it often bears a great resemblance, be cured by internal medicines, such as mercury, arsenic, and iodine, given separately or in combination, as in Mr. Donovan's preparation.

4thly. When it occupies the hairy scalp, the common procedure of shaving the head is injudicious, for it adds to the irritation of the skin ; and the scalp can be sufficiently exposed by cutting the hair as close as possible with a sharp scissors.

5thly. The great object is to get rid of the morbid action which is going on, and which consists in an inflammation of the external surface of the corium—an inflammation occurring in spots, and giving rise in the first place to an increased secretion of epidermis, which produces the scaly appearance of the parts affected ; and in the second place, to a very slight and scarcely perceptible oozing of moisture, which immediately dries into scales, and thus escapes notice, being mingled with the scurf formed by the detached portions of morbid epidermis.

6thly. The cure must be accomplished by removing these scales, as far as that can be done by diligent ablution, without using any irritating degree of friction ; and when the diseased portion of the skin has been thus exposed,

we must next have recourse to some application which will destroy the morbid secreting surface. Formerly this was attempted by means of an endless variety of complicated formulæ, each of which had its advocates ; the list may, however, be now reduced to a few simple remedies, and in truth, with nitrate of silver, sulphate of copper, or strong tincture of iodine, every case of this disease may be cured.

7thly. I never use the solid lunar caustic, or sulphate, but prefer a solution of ten, fifteen, or twenty grains to the ounce, as the case may require. As to the application of this solution, it will not do to apply it, as is generally done, with a camel's hair pencil, *for it must be strongly rubbed into each spot*, for which purpose a small bit of sponge, covered with fine linen, and tied to the end of a quill or slender stick, should be employed. When a large portion of the scalp is affected, it will require some perseverance to apply this lotion in an effectual manner.

8thly. An application of this nature, when effectually done, must not be repeated oftener than once a week.

9thly. Immediately after it, the whole scalp must be covered with a spermaceti dressing, and the spermaceti must be renewed at least four times daily, so as to keep the head constantly moistened with it. The head is not to be washed for three days after the application of the caustic, or of the tincture of iodine; but then it may be well, but very gently, washed with yellow soap and water twice a-day, taking care to cover, as before, with a spermaceti dressing after each washing.

In scaly diseases of the skin, it is quite surprising how much the cure is facilitated by keeping the affected parts constantly smeared with spermaceti, oil, melted suet, or even candle grease. Without this aid, the use of caustics will often disappoint the practitioner.

10thly. When the above precautions have been taken the cure will advance rapidly, and each succeeding application of the caustic solution or of the tincture may be less severe.

I have already mentioned that danger may arise when cutaneous action long-continued is suddenly checked. I saw lately a very melancholy example of this. A gentleman, aged about twenty-two years, contracted a rather severe cold in his chest, which rendered confinement to his room necessary for a few days. He was impatient, and applied a very strong blister to his chest, which effectually cured the pectoral symptoms, but left a sore raw surface. This he neglected to dress properly, and soon betook himself to his favourite horse-exercise, in which he indulged freely, without any other bad effects than further irritation of the blistered part, which, in the course of a few weeks, became converted into an actively-discharging surface. After some time, additional neglect and improper irritating applications so increased the inflammation, that at one time it assumed a very threatening aspect, when a plan of treatment was laid down, and followed up with perseverance, and ultimately, after the lapse of several weeks, completed the healing of this extensive and ill-conditioned sore. On the very day after the attainment of this apparently desirable object, this gentleman, who had hitherto felt his general health quite good, was seized with a difficulty of breathing and faintness, both of which increased from hour to hour, and in about twelve hours from the beginning of the attack I saw him moribund, with cold clammy skin, hippocratic countenance, and an irregular fluttering pulse. The chest everywhere sounded well, and there was an absence of all physical signs of pneumonia or bronchitis, while an examination of the præcordial region left no doubt of the

existence of effusion in the sac of the pericardium. He died in less than twenty-four hours from the occurrence of the first symptom.

It never answers to rub the affected parts of the scalp with solid nitrate of silver or sulphate of copper ; for the irritation thus produced frequently gives rise to inflammation, causing crop after crop of large pustules, or even small furuncles, an occurrence which may interrupt the cure for months ; although occasionally, when this disposition to form pustules has subsided, the original disease of the scalp will be found to have been cured. It is likewise important to remark that when the scaly tetter or ringworm of the scalp is chronic, the solution of nitrate of silver or of sulphate of copper can be much more effectually applied when the hair is about a quarter of an inch long, than when the scalp has been recently shaved ; for in the former case the operator may pour from a phial some of the solution successively on the affected portions, and the hair will prevent the solution running off until he rubs it well into the scaly surface with the bit of sponge tied to a stick : of course he must so place the child's head that the portion on which he pours the solution should be uppermost. About half a drachm may be poured on at a time. When these solutions are diligently applied at proper intervals, I have never known them to fail in the scaly tinea, and consequently in that disease I have had no occasion to have recourse to Mr. Donovan's solution of iodine, arsenic, and mercury, which has, however, been successfully exhibited by others.

I think it right to add, as a caution, that a solution of ten grains to the ounce, rubbed over the affected spots with a camel's hair pencil, produced in one little girl a sudden inflammation of the whole scalp, causing many sloughing boils, and such a morbid process as, it is true, perfectly cured the original disease, but, for the time, totally destroyed the hair on many parts of the head. After two years, however, the hair again grew partially upon these spots, and at the present moment the new crop appears so much on the increase, that I am in hopes the deformity will be but partial. Since this untoward occurrence I always commence the treatment with a much weaker solution.

Allow me now to direct your attention to two cases of *prurigo* which have been recently admitted. The first is that of Jane Cassidy, a woman advanced in life, but of tolerably good constitution, considering her age, station, and circumstances. About three months before admission, a rash appeared over her arms, legs, and body, which was preceded and accompanied by pain of the stomach, head, and limbs, with recurring rigors. As far as we can learn from her description, this appears to have been urticaria ; of this, however, we cannot by any means be certain ; and, besides, it is of little consequence, as *prurigo* may come on without it. She is at present labouring under *prurigo senilis*, not thickly disseminated, but still a source of constant annoyance to her, from the intolerable itching it produces. Several of the papulæ have formed dark red crusts, but this is in consequence of their bleeding from being scratched.

This affection has been so well described by writers on cutaneous diseases, and is so easily recognised, that I shall not take up your time in detailing its characters ; a few circumstances connected with treatment, however, should be mentioned as deserving your notice. In the first place, I may observe that *prurigo* is a most harassing complaint, and, if not checked, has a tendency to undermine the constitution by disturbing the patient's rest. The warmth of

the bed-clothes, by increasing the vascularity of the skin, occasions an aggravation of symptoms; the patient passes a miserable and restless night, and rises in the morning quite unrefreshed. This, in process of time, gives rise to a kind of febrile condition of the system; the mouth and fauces become dry; the appetite is impaired; the secretions deranged, and debility and emaciation gradually produced. It is a disease which has broken many a constitution, which, previously to its accession, was to all appearance unimpaired and healthy.

Prurigo has been confounded with common itch, but if you examine the parts it occupies, you will easily distinguish them. It is most likely to be confounded with the small vesicular itch, where the vesicular papulæ (this is the most expressive term I can think of) are extremely minute. There is a papular itch, and there is also one which is intermediate between the vesicular and the papular; it is with the latter that prurigo is most apt to be confounded. The difference between them, however, may be recognized by observing the parts of the body on which they appear. Itch generally attacks the extremities, and particularly the insides of the joints and the spaces between the fingers. Prurigo, however, does not occupy the same situations. If you examine this woman, you will not be able to find any trace of the eruption about the joints or between the fingers—and this circumstance is of itself sufficient to make the distinction, for itch would not have lasted for three months without attacking these parts.

I may also observe that prurigo senilis is generally accompanied by derangement of some of the most important secretions of the body, but particularly of the urine. Its appearance is in many instances preceded by a scanty flow of urine, and it is frequently accompanied by the deposition of a copious pinkish white sediment, which is the lithate of ammonia. This observation is worthy of attention, because it furnishes us with a hint towards the treatment, of which we may sometimes avail ourselves with great benefit to the patient. You will, in such cases, often effect a great deal by the use of diuretic medicines—as cream of tartar with decoction of juniper berries and squill; or with the more stimulant diuretics—as turpentine and cantharides. It will be also good to vary these remedies according to the circumstances of the case, and they should be always given in combination with medicines calculated to act beneficially on the digestive organs.

In this case we have given decoction of sarsaparilla with nitric acid for the last two days; before this, we gave cream of tartar with powdered bark. These are some of the best medicines which can be used internally in the treatment of prurigo senilis. It is, however, a very obstinate disease, and you will be often obliged to try many internal and external remedies before you can hit on one that will prove serviceable. Cooling diuretic aperients, aperients combined with tonics, and the decoction of sarsaparilla with nitric acid,—these are the chief internal remedies; as to external ones, they are extremely numerous. In the present case we have, in the first place, directed the patient's body to be washed with a lather of soap and warm water every night and morning. The water for this purpose should be used as hot as the patient can bear it, and a very soft brush or sponge should be employed.

In prurigo, a vast deal of good has been done by merely washing the itchy parts with soap and warm water; how it acts I cannot say, but I have seen a great deal of advantage derived from a long-continued perseverance in its use. After this you may have recourse to more powerful applications—such, for instance, as sponging the parts at bed-time with hot whiskey and laudanum,

a pint of the former to a drachm of the latter. Here you have the stimulant effect of the whiskey, the narcotic of the laudanum, and the peculiar action of heat on the skin, all combined, and calculated therefore to make a very decided impression. How this effect of heat is produced I cannot tell, but we all know that, whether applied in a moist or dry form, it exercises a powerful influence over the vascularity and nervous vitality of the skin. Neither can I tell you what description of cases are most likely to benefit by it; some cases of prurigo senilis are much relieved by warm applications, others are not; you should, however, always make a trial.

There was one application used in this woman's case, to which I shall briefly call your attention. A drachm of acetate of lead was dissolved in two ounces of wine vinegar mixed with the same quantity of water, and this was rubbed up with olive oil so as to form a liniment. Mr. Nalty, who mixed up the ingredients, says that three ounces of olive oil were absorbed. You are aware that oil conducts itself, with respect to the metallic oxides, as it does with the alkalies. This formed a liniment, which, when allowed to stand, separates; but its ingredients are at once miscible by shaking the bottle. From its use the woman has derived great relief, and I can recommend it to you as one of the best applications in prurigo.

Before concluding, I just wish to remark that, in eczema and many other forms of skin disease where itching is a troublesome symptom, I have used with very decided benefit a lotion composed of eight ounces of decoction of poppies, and two or three drachms of solution of isinglass.

LECTURE LXI.

PURPURA.—THE HAIR.

Two cases presenting some points of deep interest and novelty have recently come under my notice ; in both instances the sufferers were young men of good constitution, who in the prime of life, free from any discoverable organic affection, and without any known predisposing cause, have fallen victims to profuse and intractable hemorrhage.

These two cases will be found to present many points of similarity ; indeed, they agree in their most striking features with each other, while they do not correspond either with any of the varieties of purpura as described by Willan, or with any form of hemorrhage noticed by other authors. This identity of type, and the remarkable circumstance that each was accompanied by a rash not at all like *purpura*, but very closely resembling the rash of measles, has led me to look for a name expressive of the chief characters of the disease. The great obstinacy and fatal extent of the hemorrhage rendered obvious the appropriation of the term *hæmorrhagicum* to the species, while the occurrence of a rash appearing on the skin at a certain stage pointed out the term *exanthema* ; accordingly, I have fixed on the name *exanthema hæmorrhagicum*.

The eruption, as I have said, resembled that of measles ; it had not, however, the crescentic outline of the rubeculous rash, and consisted of roundish spots, almost exactly similar in appearance to the red efflorescence which we so often see in maculated typhus. The constitutional symptoms, however, as we shall see, altogether differed from those of fever in general, and typhus in particular.

Being of opinion that the disease I am about to describe has not been accurately observed by preceding authors, and having ventured to give it a new name, I think it right to read for you the account of purpura hæmorrhagica, as given in the *Cyclopædia of Practical Medicine*, in order to give you an opportunity of judging whether I am justified in the claim made for the admission of an additional disease into our nosology.

“In *purpura hæmorrhagica*, ‘the petechiæ are often of a larger size, and are interspersed with livid stripes and patches, resembling marks left by the strokes of a whip, or by violent bruises. They commonly appear first on the legs, and at uncertain periods afterwards on the thighs, arms, and trunk of the body, the hands being more rarely spotted with them, and the trunk generally free. They are usually of a bright red colour when they first appear, but soon become purple or livid ; and, when about to disappear, they change to a brown or yellowish hue ; so that, as new eruptions arise, and the absorption of the old ones slowly proceeds, this variety of colour is commonly seen in the different parts about the same time. The cuticle over them appears smooth and shining, but is not sensibly elevated ; in a few cases, however, the cuticle has been raised into a sort of vesicle, containing black blood. . . . The gentlest pressure on the skin, even such as is employed in feeling the pulse, will often produce a purple blotch like

that which is left after a severe bruise.* The nature and seat of the small effusions of blood which constitute the petechiæ, from which the vibices and ecchymoses differ chiefly in magnitude, are well explained by the anatomical researches of Rayer. 'On dissecting the skin,' he observes, 'it is found that the petechiæ and ecchymoses do not at all occupy the same situation. Some are very superficial, and seated on the surface of the rete mucosum; others occupy the alveoli of the cutis; the largest and darkest-coloured have their seat under the skin in the cellular tissue. In these the blood is found coagulated, but it is fluid in the smaller and more superficial effusions. The vascular ramifications contiguous to these minute ecchymoses are in their natural state. The blood is easily removed by washing or maceration.'†

Having made these preliminary observations, necessary for the better understanding the peculiarities of the disease we have to describe, let us now proceed to the cases themselves.

John Coghlan, aged 29, appearance robust; previous health vigorous, and habits temperate. This man was admitted into the Meath Hospital on December 7, 1837, and stated that on the 1st of that month he had been seized with rigors, headache, stupor, &c. which had continued with lassitude to the time of his admission. On the day of his entrance the following report was made of him:—headache, cough with expectoration, and pains in back; skin hot, but free from maculæ; bowels constipated; tongue dry, rough, and brown; pulse 80, hard and thrilling; urine muddy, and sleep disturbed. His head was ordered to be shaved, leeches to be applied behind each ear, and an antifebrile aperient of salts, senna, and scammony to be administered.

The report on the next day was, that the bowels were twice opened; evacuations black; had vomiting of dark fluid; tongue very dry and rough, and pulse 70, hard and thrilling; headache continues. He was ordered a blister to the epigastrium, to be dressed with morphia ointment; twenty-four leeches to be applied behind the ears; and the following:—

R. Calomelanos gr. ss.
Sacchari, gr. ij.
Misce ut fiat pulvis, quartis horis sumendus.

The hemorrhagic pulse and dry tongue continued; the urine soon deposited a sanguineous sediment, and the dark colour of the fæces was found to depend on their admixture with blood. Doses of diluted nitro-muriatic acid were administered every three hours, during two days; this medicine had no good effect; blood began to ooze from the gums and inside of mouth; hemoptysis came on; the urine and fæces retained their sanguineous appearance; the pulse still hard and thrilling, and the tongue as dry as ever. Citric acid was now employed without benefit; the general hemorrhage continued, and the thrilling pulse was attended with violent and tumultuous action of the heart. He was ordered the following draught:—

R. Tincturæ Digitalis, min. xx.
Tincturæ Opii, min. v.
Misturæ Amygdalarum, fʒj.
Misce ut fiat haustus, quartis horis sumendus.

On the seventh day from that on which the bleeding from the intestines

* Bateman, *Synopsis*, p. 105. † Rayer, *Malad. de la Peau*, ii. 162.

was perceived, an eruption of rather large red spots appeared on the arms and thighs; the colour of these was removed by pressure, but instantly returned on its being withdrawn. All the symptoms progressed; the alvine and urinary discharges became very sanguineous, and the tongue and pulse retained their striking characters. The digitalis and opium were continued during five days, and affected no diminution in the quantity of blood discharged, and little, if any, change in the state of the arterial system. Digitalis was next prescribed in combination with diluted sulphuric acid, and still without success. The foxglove was then omitted, and diluted sulphuric acid, in large doses, with sulphate of magnesia, was substituted for it; still hemorrhage advanced daily, the pulse retained its constant thrill, and the tongue its unalterable dryness.

The cutaneous spots faded and disappeared; and at this time, the disease advancing under the cautious administration of so many remedies, and the pulse still acting with incessant thrill, it was determined to try the effect of a small bleeding from the arm. Blood was drawn to the extent of six ounces, and the mixture of salts and sulphuric acid was continued. The abstracted blood presented a firm coagulum, some buff, and a large proportion of serum. The general symptoms were unaltered. Bleeding was twice resorted to, after this, to the same amount; and blood withdrawn at these times presented firm coagula, with most distinct cup and buff. The bleeding, although it seemed to have no *injurious*, had no *beneficial* effect. The effusion of blood from mucous surfaces continued; the tongue was still dry and rough; the pulse hard and thrilling; the action of the heart retained its violence, and dicrotous pulsations became evident at the wrist. Copious epistaxis was added to his symptoms: acetate of lead with opium, and acetate of morphia with quina, failed successively, as also did oil of turpentine administered internally. The patient became exsanguineated, emaciated, and dreadfully weakened; constant vomiting of blood set in, and at last, on the 29th of December, after an illness of twenty-nine days, convulsions and death closed the scene.

A careful post-mortem examination afforded no explanation of the fatal hemorrhage; no organic lesion was discovered, and the only morbid appearance was a number of minute red spots dispersed over the surface of the mucous membranes.

For the sake of perspicuity I shall briefly recapitulate the most important features in the above case, before proceeding to the consideration of its character. With regard to causes, predisposing or exciting, I can assign none to account for the disease. The patient had been strong and healthy up to the accession of his illness. He had never been accustomed to unwholesome diet, nor had he ever indulged in habits of intemperance. Febrile symptoms ushered in his malady. On admission into hospital, his two most marked affections were, an exceedingly dry and brown tongue, and a hard and thrilling pulse. (The thrill was not dicrotous, though dicrotous pulsations were afterwards perceptible; it conveyed the sensation of small, sharp vibrations accompanying each beat—a kind of wiry trembling.) These signs continue; bleeding from the intestines and urinary system quickly supervenes; this increases, and at length the whole mucous system of the patient becomes the seat of copious hemorrhage. A peculiar exanthematous eruption appears upon the skin in this stage of the disease, lasting during five days, and never presenting any signs of extravasation. During twenty days the hemorrhage obstinately advances, defying alike an astringent, a sedative, and an antiphlo-

gistic treatment, and at last, triumphant over all the opposing effects of medicine, hurries its victim to an early grave.

I request that you will particularly bear in mind three circumstances in this disease, namely, the permanent dryness of tongue, the extraordinary thrill and hardness of pulse, yielding only to the withering influence of approaching death; and, lastly, the peculiar nature of the cutaneous eruption; as these will form important points in the subject of classification.

CASE II.—Michael Parker, aged 34, a labourer, of strong muscular development and sanguineous temperament, was formerly much addicted to spirituous potations, but of late has in a great measure abstained from their use; for several years has been subject to repeated bleedings from the nose, generally preceded by cold, a sense of heaviness and sometimes pain in the head, always relieved by venesection: whilst in a state of profuse perspiration fourteen days ago, he took some cold water, and was immediately attacked with rigors, slight nausea, and considerable lassitude; in the course of a few hours, bleedings from the nose, mouth, and bowels came on, continuing to flow with vigour till venesection was performed, when instant relief and complete cessation of the epistaxis were the consequences; two days afterwards there was a return of the bleeding from the nose and the other symptoms above mentioned, when the same operation was resorted to, and with considerable efficacy; since then up to the present time he has had frequent attacks, but of a milder character. From the first attack he thinks not less than one gallon of blood must have been lost.

Since his admission into hospital, he has been spitting up blood of considerable consistence, clotted, of a dark colour, and mixed with frothy sputa. His general appearance is bloated, particularly about the face; the skin being slightly yellow, better marked in the conjunctiva of both eyes than elsewhere; the nose is clogged with blood; tongue, teeth, lips, gums, all the upper and posterior parts of the mouth are covered with a hard, black substance, evidently coagulated blood. On its being removed from a portion of the gums, they commence bleeding afresh, the blood apparently oozing out from a number of minute apertures, not larger than the perforations produced by the prods of pins; percussion and respiration natural over all parts of the chest; some epigastric tenderness, but no pain induced by pressure over the hepatic region, neither is there any evident enlargement of the liver; bowels confined; stools have latterly been of a black colour, being sometimes mixed with a quantity of blood; has no appetite; pulse 48, full, hard, and thrilling; respiration slow and easily performed.

*Applicentur hirudines sex epigastrio, et solutis
aluminis saturata dentibus linguæ, &c.*

*R Sulphatis Magnesiae, ʒvj.
Acidi Sulphurici diluti, fʒij.
Infusi Rosæ, fʒviij. Misce;umat nuciam secundis horis.*

3rd. Leech-bites bled profusely, affording much relief to the pain in epigastrium; lost but a small quantity of blood from the mouth since yesterday; had some sleep; bowels costive; pulse 52, full, strong, and bounding.

*Repetatur mistura infusi rosæ, &c.
Adhibeatur enema emolliens statim.*

4th. The stools produced by the injection were free from blood, but of a dark colour and very fetid odour. A return of the epistaxis occurred this

morning, much more copious than for some time past ; in the course of about half an hour a pint of florid red blood flowed from the right nostril, which, when the head was inclined backwards, trickled down the œsophagus, through the posterior nares. His countenance has become anxious ; cheeks livid, and respiration more hurried ; pulse 52, strong, full, and at present compressible.

Omittatur mistura ut supra præscripta.

R Acetatis Plumbi, 3ss.

Opii in pulvere, gr. ij.

Pulveris Glycyrrhizæ.

Mucilaginis, ā ā, quantum sufficit ut fiant pilulæ xvj, quarum capias unam omni horâ, et post quatuor doses, unam tertiis vel sextis horis.

6th. After much trouble and difficulty, the bleeding from the nose was checked by plugging up the nostril with lint dipped in an astringent solution ; since then it has not returned. Over the surface of the body an eruption, ushered in by a tingling sensation resembling the sting of nettles, has made its appearance, more advanced on the thighs, left arm, tips of the shoulder, and back of the neck, than any other part, and is of a dark red hue. Pulse slow, full, and strong ; bowels confined.

Repetantur pilulæ. Habeat enema emolliens.

8th. Has had no recurrence of the bleeding since the 4th instant ; was last night seized with sickness of stomach and vomiting of dark coloured fluid, resembling the colour of catchup, and depositing a coffee-ground sediment. From the bed and surface of the body generally there is exhaled a peculiar disagreeable odour ; the eruption is fading, and the skin presents a dusky yellow colour. Passes each night in sound sleep, and seems very much inclined to remain in that state the entire day ; complains of urgent thirst and total loss of strength, being unable to walk without assistance. The liver has evidently become increased in size since admission ; no pain, however, is caused by pressure. Tongue furred and quite dry ; pulse 68, thrilling ; bowels regular ; stools not tinged with blood ; urine natural.

Omittantur pilulæ ; applicetur vesicatorium magnum hypochondrio dextro.

R Acidi Nitro-muriatici, f3ij.

Decocti Hordei, lb. j. Misce ; consumatur quotidie.

9th. A considerable bleeding from the nose came on during the night ; of its occurrence, however, he is quite unaware ; the sheets and bed are stained of a florid red colour, and there is also on them a quantity of blackish matter similar to the coffee-ground sediment ejected from the stomach on the 8th. The fetor is greatly increased, and can be perceived at the distance of several feet from the bed. Eruption has in some measure disappeared from the body, but still remains on extremities ; tongue the same ; pulse 68, bounding and vibrating.

Omittatur mistura Acidi Nitro-muriatici.

Admoveatur vesicatorium magnum toti abdomini.

R Olei Terebinthinæ, min. x.

Mucilaginis, f3j.

Sacchari albi, 3ij.

Aquæ, f3ss ; misce, sumatur omni horâ.

Habeat Vini rubri f3viij.

A pint of chicken broth daily.

10th. Blood continues to flow from anus ; on examination, the parts seem excoriated, the slightest pressure causing the most excruciating pain ; no recurrence of the vomiting or epistaxis has since happened. Tongue brown, parched, and rough ; pulse the same ; respiration slow ; urine natural.

Admoveatur hirudines sex ano. Repetantur haustus.

11th. Leeches produced a copious flow of blood ; had one costive stool mixed with blood this morning. Pulse 66, a little softer ; abdomen soft and free from pain ; eruption has almost disappeared from the body ; is losing strength very fast.

℞ Pulveris Rhei, ʒj.
Sulphatis Magnesiae, ʒss.
Sulphatis Potassae, ʒj.
Olei Terebinthinæ, fʒj.
Aquæ Menthæ Piperitæ, fʒj.
Misce ; fiat haustus statim sumendus. Repetantur alia.

12th. Continues to pass blood and the coffee-grounds sediment from the bowels as hitherto ; is remarkably heavy and stupid ; has no appetite, but great thirst ; countenance pale, and surface of the body assuming a blanched hue. Pulse 68, strong and thrilling ; in other respects the same.

13th. Died at 5 o'clock, a.m. No post-mortem examination.

In addition to the observations already made, the following particulars require special notice. *First*, in both these patients the disease proved fatal in about four weeks. *Secondly*, in neither did the pulse exceed the natural frequency, being about 70 in Coghlan, and about 50 in Parker. This circumstance tends strongly to distinguish the disease from hemorrhagic fever ; it is worthy of remark, too, that there was no febrile disturbance of the nervous system, no headache, raving, or even want of sleep. On the contrary, until the system suffered from excessive loss of blood, the functions of the nervous system were quite unimpaired, and the patients looked and spoke in a manner quite different from that of fever patients. They were, almost to the last, perfectly rational, and in the beginning of the disease their strength was not remarkably impaired ; it yielded, and that gradually, not to fever, but loss of blood. I dwell on this, because some of my friends suggested the idea, that these men were affected with hemorrhagic typhus. *Thirdly*, the eruption in both was slightly elevated, and evidently constituted an efflorescence or rash, and disappeared in five or six days altogether, thus entirely differing from the spots of purpura. *Fourthly*, the disease, in the first instance, seemed almost exclusively confined to the arterial and capillary systems of vessels, and did not engage the nervous, respiratory, or digestive systems at all in Coghlan, while in Parker neither of the two former systems were implicated ; but the stomach and more especially the liver seemed affected, circumstances in all probability not essentially connected with the disease, but attributable to his drunken habits. *Fifthly*, were I again called on to treat a similar case, I would in the beginning use depletion by the lancet to a much greater extent.

Dr. Watson, in the article Hemorrhage, in the *Cyclopædia of Practical Medicine*, mentions, besides "congestion," which could hardly have caused the extensive bleeding in the present case, two conditions of facts concerned in the production of idiopathic hemorrhage : these are, first, an alteration in the vessels or apertures through which the healthy exhalations are transmitted ; this alteration depending on morbid debility and relaxation. Second-

ly, an attenuated state of the vital fluid. Now I do not think that either of these causes can account for the sanguineous discharge in the case last detailed, and my reasons for this opinion are the following :—First, that the thrilling and bounding pulse, and the violent action of the heart, together with the total inefficacy of tonic and astringent treatment in the above case, denote an energetic condition of the circulating system not reconcileable with the supposition of a weakened state of the exhalent vessels. Secondly, that the natural coagulation of the abstracted blood is opposed to the idea of that fluid having existed in the circulation in a depraved or attenuated state. If we were to judge of this case by its unyielding opposition to remedies, stimulant and antiphlogistic treatment having been unsuccessful, we should be reduced to the necessity of supposing, that it had for its cause a peculiar *hemorrhagic* action of the capillary vessels of the mucous membranes, probably co-existent with, if not dependent on, an increased action of the whole capillary system. But the question suggests itself, whether in these cases of idiopathic hemorrhage the capillary vessels may not be supposed to assume some morbid action, tending to the effusion of pure blood in place of natural secretion, and whether this may not exist without any alteration in the structure of the vessels, or in the physical condition of the blood within them. If such a state of the capillary system can exist, it might account for many forms of hemorrhage which are now supposed to depend upon some mechanical alteration in the solids or fluids; and would, I think, sufficiently explain the phenomena presented by the disease before us, which cannot be explained by the supposition of structural change.

There are but two diseases described by authors whose symptoms bear any marked resemblance to those of the disease in question; these are, purpura and scurvy; and it now becomes my task to show some very important distinctions between these somewhat similar affections.

In all these diseases one great feature is alike, namely, the occurrence of *general internal bleeding*; this is common to them all, but there are some striking peculiarities in the disease I have now described to you, which will doubtless be allowed to entitle it to a distinct and separate character: to these I beg leave to direct your attention. First, then, to engage in the enquiry whether our case was one of *purpura*. Dr. Goldie, in the article "*Purpura*," in the *Cyclopædia of Practical Medicine*, describes that disease in the following manner:—As characterized by an efflorescence on the skin of red, purple, or livid spots of various sizes, accompanied by hemorrhage from various parts, chiefly from mucous surfaces; he proves that the spots consist of effusions of blood under the cuticle, and says with regard to them, "they are therefore essentially different from every form of *rash* or other cutaneous eruption, and are properly considered as the result of cutaneous hemorrhage."

Here, then, it is evident, that in purpura the cutaneous eruption is the most characteristic, and that it is the consequence of small extravasations of blood. In the disease before us the eruption only existed during five days out of twenty-nine; was then partial, and did not arise from effusion of blood, for it presented throughout the precise properties of an exanthema, disappearing on pressure, returning instantly, and fading gradually. Again, the purple spots produced in purpura by *pressure* never appeared in the case before us. The eruptions of these diseases are, therefore, perfectly contrasted; the pulses also differ as widely from each other. Dr. Mackintosh describes the pulse of purpura as varying much in different cases; in some, being quick and weak; in others, full and intermitting; but in none is there the smallest approach

to the permanently thrilling, or to the diicrotous character of the pulse in the disease before us. The state of the *tongue*, although it seems to me far less connected than that of the *pulse* with the disease we are considering, was yet equally remarkable. The last distinctive mark between these diseases, to which I shall direct your notice, is the fact of no ecchymoses having been detected in the above disease, signs which so often appear in the autopsy of purpura. It would appear, then, that too many and too important differences exist between the cases I have detailed and the disease of purpura to allow of their being classed together.

To extend this examination, I will now consider whether scurvy is more allied than purpura to the disease in question ; and on the very threshold of this inquiry a mark of distinction is perceived, which afforded no assistance in the previous comparison—I allude to the causes of scurvy. It must be confessed that the causes of purpura are often as obscure as were those of the disease under consideration, but not so with scurvy. There is no disease more plainly traceable than scurvy to manifest causes ; and I can discover no account of scurvy having ever suddenly attacked a man in the prime of life and health, accustomed to wholesome food, and subject to no evident morbid influence. The disease of which I speak did, however, arise in this sudden and inexplicable manner ; the mild symptoms of a febricula having been its only premonitory signs.

Now that I have referred to scurvy, allow me to digress for a few moments while I lay before you a series of coloured drawings, which exhibit the morbid appearances in the true scurvy, now a very rare disease, and which you will seldom have an opportunity of becoming acquainted with, except from books. The disease is the true sea scurvy, formerly the plague of all long voyages, but over which medical science has achieved one of its greatest triumphs, not less by the cure than by what is far better—the prevention of this disease, which is now so readily effected by the use of fresh provisions and other appropriate means, that it should now be never permitted to break out on board a ship during the longest voyage. The subjects from whom the drawings were made were part of the crew of an East India ship coming from Calcutta, but to which the parsimony of the owners had denied a proper supply of fresh provisions. There were no potatoes nor antiscorbutics on board ; the consequence was that the crew had nearly all become affected with scurvy, and were unable to work the vessel, which was driven on shore near Balbriggan. The crew were landed, and those who were the most disabled were removed to the Meath hospital, where, under the use of fresh vegetables and anodynes, they are all recovering. They are all young men of vigorous constitutions. These were the first cases of the disease I have seen, and I was not perfectly aware of the course taken by the disease till I had observed these patients. From the descriptions given by the men, and my own observations on them while in the hospital, I shall give you a short account of the symptoms :—An eruption on the skin resembling petechiæ, and in some parts large blotches and ecchymoses like those of purpura, first made their appearance ; the subcutaneous areolar tissue was engaged in these, and effusion into it rapidly succeeded ; there was extreme debility and prostration of strength ; the gums became tumefied as the disease proceeded, and abrasions appeared about their edges, from which there were frequent discharges of blood. In some cases there is merely tumefaction of the gums without abrasion ; in a still more advanced period the tumefaction increases, and there is a morbid growth or true hypertrophy of the gums, in which the teeth are completely imbedded ;

this morbid growth becomes blue, and at last ulcerates and gives rise to hemorrhages. None of the present cases have proceeded so far as this. The gums in all the patients were tumid and hypertrophied, and portions of the gum appeared wherever there was an interval between the teeth which were loosened. In several of the cases the gums were ulcerated; in some there was effusion into the popliteal space, which was filled with a painful swelling. Similar swellings appeared on the head and other parts in others, resembling syphilis in appearance; in one the cicatrix of a bubo that had healed three months previous broke out afresh. In all, the rapid progress to a healthy state under the use of proper diet was remarkable, exemplifying the great importance of constitutional means in local disease. You perceive, then, what a marked difference there is between sea-scurvy and the disease which I have been speaking of in this lecture, to which I shall now return.

As to the hardness and thrilling character of the pulse in these cases, it was very remarkable; but it is difficult to determine whether it depended on the action of the heart, or on some peculiar functional derangement of the arterial system, or on some diseased condition of the capillary vessels reacting on the latter; but I am much inclined to think it connected with either or both of the latter conditions, rather than any particular affection of the heart. In Parker I observed something like a dicrotous systole, but it was very indistinctly marked, and in the other case it was absent. I am, therefore, disposed to believe that the peculiar action of the pulse was wholly independent of that of the heart: we have many examples of this. I attended some time ago, with Dr. Dwyer, a gentleman in Parliament-street labouring under maculated fever. It was about the tenth day of fever; the patient was extremely ill, unable to turn in bed, and scarcely able to swallow; labouring under tympanitis and subsultus, and yet his pulse had the very remarkable character which I have just described; it was thrilling, dicrotous, and hard. After firm pressure with my finger, I could feel the pulsation of the vessel below the compressed point; yet this was a man to whom we were obliged to give wine and stimulants, so great was his debility.

Some time ago I met with a gentleman whose pulse presented this hard, thrilling character in a very remarkable degree: he was a military man, equally distinguished for his energy and coolness; a person of calm temper and sound judgment; in fact, apparently anything but a nervous or irritable person, yet his pulse differed remarkably in its action from the heart. Both were slow; but while the action of the heart was calm and natural, that of the pulse betokened high excitement. I never felt such a pulse, even in cases of pleuritis, or pneumonia, or rheumatic fever; yet it was seldom above 60 in the minute. The first time I had the pleasure of his acquaintance he came to consult me for a slight cold; he looked well, his chest was apparently but little affected, and I thought I never saw a patient with less to complain of. Before I dismissed him I felt his pulse, more as a matter of course than from any curiosity as to the state of the circulation. On laying my finger on the artery I felt quite alarmed. I ordered him immediately to bed, and sent for the family apothecary, to whom I gave directions to bleed him largely. I visited him next day, and found everything going on well: sleep, appetite, digestion, respiration, all natural; but his pulse was just the same as before. It bounded under my finger with a degree of force and wiry hardness truly astonishing. I paused just as I was about to use the lancet again, and determined to wait some time longer and watch the progress of the case.

The gentleman continued to improve and got perfectly well, but the pulse

remained as before. As he was a military man, and liable to be brought into contact with strange physicians, I thought it necessary to give him a certificate, stating the character of his pulse; for if he happened to be attacked during his service with any species of illness, and a stranger to his constitution were called to prescribe for him, he would most certainly take out his lancet immediately, and bleed him to the amount of one or two pints.

I mention these cases to show that the state of the pulse is not an infallible guide, capable of directing our practice on all occasions, and that the action of the pulse depends upon something besides the heart.

There is always something in disease accompanied by loss of blood calculated to awaken our sympathies. Loss of blood appeals directly to our animal instincts, and few can witness it without running to the succour of the bleeding person. The physician will pass by other cases with no other sympathy than ordinary attention, but his feelings are affected by hemorrhage as well as those of the by-standers, and his assistance is, therefore, given with a promptitude seldom bestowed on other diseases.

Loss of blood, besides its immediate effect, is also likely to produce changes which are long felt in the system; persons after profuse hemorrhage are liable to suffer long after the accident, and though the functions go on as before, and the loss is repaired, yet a certain languor generally remains, accompanied by paleness of the lips and face. I have seen several instances of this; the persons looked blanched and white, like pieces of wax or marble. I recollect a lady who after extensive loss of blood remained for several years as pale as wax; indeed she never thoroughly recovered her natural complexion, and looked like a person in the last stage of chlorosis. The same thing occurs in chlorosis, in which the blood appears to be manufactured slowly, and of a deteriorated quality. This state, however, differs from the former, for it may be wholly removed, and the patient restored to her natural complexion; but any person who remains for a few months pale from loss of blood seldom or never recovers the hue of health.

There is at present in Kingstown a man who was bled nine times in three days, each time largely, for an attack of acute pneumonia, and though many years have since elapsed, he has still the colour and aspect of a person about to faint from loss of blood. A lady of my acquaintance underwent a similar excessive course of phlebotomy thirty years ago, and is still remarkable for her extreme pallor, a fact strongly confirmatory of the account which Tacitus has so graphically drawn of the effects of loss of blood on Seneca's widow, who, wishing to bleed to death along with her husband, was saved by the orders of Nero, "*ne glisceret invidia crudelitatis.*" But the tyrant's object was not accomplished, and she remained for many years, adds Tacitus, a memorial of her husband's fate, "*ore ac membris in eum pallorem albensibus, ut ostentui esset.*"

I shall next call your attention shortly to the particulars of a singular case which Dr. Boxwell of Abbeyleix has furnished me with, of purpura hæmorrhagica, in the course of which an effusion of blood took place into both eyes, thus completely destroying vision. The blood was extravasated, in the first instance, somewhere behind the iris in the right eye. Now, as the pupil had a blood-red appearance when the impairment of vision commenced, and at that time there was no discoloration or muddiness in the anterior chamber, we may conclude that the first hemorrhage was into the structure of the vitreous humour. Had blood been effused into the posterior chamber, in such quantity as to impart to the pupil a blood-red appearance, it must have tinged

strongly the fluid in the anterior chamber. Vision became worse and worse in the right eye, and was extinguished in about five hours, at which time the aqueous humour was evidently mixed with blood. Next day the other eye became similarly affected, and the young lady continued totally blind until her death, which took place in about a week afterwards, under circumstances so extraordinary, that it may be useful briefly to recapitulate the leading features of her case, as communicated by Dr. Boxwell. The disease commenced with severe pain in the hip-joint, increased on the slightest motion. At first she appeared to be relieved by baths, calomel, and James' powder followed by purgatives; but as the pain returned with increased violence, it was found necessary to apply twelve leeches over the hip-joint. Dr. Boxwell returned in two days to see his patient, a young lady about thirteen years of age, and found that the bleeding from the leech-bites had continued in spite of all the efforts of her attendants, ever since he left her. She was pale, and exhibited the appearance of a person exhausted by bleeding. Her pulse, however, was not feeble; it was quick and bounding, just as it is in many cases after copious loss of blood.

From that period her complaint assumed the character of purpura, attended with the discharge of bloody urine. No other hemorrhage took place, except that already described, into the eye-balls. The bleeding from the leech-bites had completely removed the pain in the hip-joint, but she now began to complain of intense pain in the head, accompanied by throbbing, nausea, and total loss of appetite. The headache became every day more excruciating, and the discharge of blood from the bladder greater. The most judicious treatment was ineffectually employed; no medicine, no local application diminished the agony she suffered from pain in the head; and she died on the fourteenth day from the commencement of her illness, exhausted by pain and loss of blood, having retained her intellect to the last, and without the least sign of paralysis, coma, convulsions, or any other symptom denoting the effusion of blood within the cranium. The duration of the disease, from its commencement to its fatal termination, was only fourteen days.

I shall now conclude the observations I intend making on diseases of the skin, with some remarks on the hair and its affections.

Physiologists are agreed that the hair consists of matter somewhat analogous to horn or nail, secreted by a vascular sac imbedded in the skin, and sometimes reaching as far as the subcutaneous tissue. There is reason to believe that this sac is abundantly supplied with nervous matter, and embraces within it the bulb-like root of the hair, which is now generally thought to be of a homogenous texture, and not tubular or hollow in the centre. The colouring matter of the hair is said to be diffused through its substance; and most authors are of opinion that the hair, once formed, is then placed beyond the reach of any change connected with the organism. The phenomena of *plica Polonica* seem difficult to reconcile with this hypothesis, and my observation that hair, generally speaking, grows gray first at the top—the want of colour proceeding from the point towards the root—seems to establish the contrary supposition; and proves that the hair, during its growth at least, is an organized body endued with vitality, or otherwise it could not happen that colouring matter once deposited through its texture could disappear. And the probability of this opinion is strengthened by the rapidity with which it disappears, for even a long hair, when the greyness at its extremity has commenced, becomes entirely gray in the course of a few days, the absorption of colour

proceeding rapidly to its root. Examples, too, have occurred of an evident sensibility existing in hair otherwise healthy.

Some physiologists have attributed the colouring matter of the hair to the sebaceous follicles, which, they say, secrete an oil, by the combination of which with certain principles contained in the hair the colour is developed ; but, according to this opinion, the hair once dyed would not lose its colour in the manner I have described above. For practical purposes, then, we may consider the hair to resemble a plant inbedded in the surface of the body, and consequently its healthy or its diseased functions must be connected not only with changes occurring in the hair and its bulb, but with those which take place more immediately in contact with the latter. Thus, the hair may cease to grow, and baldness ensue, as in old age, from decay and absorption of the bulb itself ; or the same result may in youth be produced by causes which injure the vitality of the bulb, or change the structure of the skin in which it is implanted.

I shall now relate some cases in which grey hair regained its natural colour. A field officer in a distinguished regiment had served for many years in tropical climates ; had undergone the fatigues of the Burmese and other subsequent campaigns in the East Indies, during which he contracted dysentery, and fever, and various maladies peculiar to hot countries ; and finally, after many years' service, was obliged to return to Ireland for the purpose of recovering his health. When he consulted me he was worn and emaciated, and complained much of dyspeptic and nervous symptoms, with a constant tendency to bowel complaint. He was then forty-eight years of age, and his hair had, during a few years preceding, become quite white ; while his forehead, parts of his cheeks and back of his neck and shoulders, presented many large maculæ of a brown colour, nearly as deep as the areola round the nipple of a pregnant woman. In the course of a few years he visited me again, having during the interval remained with the depôt of his regiment in England, and gradually regained his health under the influence of regimen and his native air. On his second visit I scarcely recognised my former patient. He had become robust and healthy-looking, and the maculæ had altogether disappeared, while his hair had regained its original brown colour : not a single grey hair remained. The hair is now soft and silky, and has continued of its natural colour during the last two years ; but it is remarkable that the whiskers have remained white.

In the year 1837 I was called by Dr. Beauchamp to see a gentleman, aged 67, labouring under the then prevalent influenza. He was a strong, hirsute man, and his chest was covered with long white hair, which had been black in his youth. We blistered him on the chest, and when he recovered from the disease the hair on the part that had been blistered grew again, but was now quite black, and has continued so since. I need scarcely add that he is very proud of this unexpected symptom of returning youth, and readily exhibits to the curious this portion of his chest.

In the year 1845 the late Mr. Daly consulted me in the case of a shop-keeper, aged about 35, who had a slight attack of apoplexy, followed by incomplete hemiplegia. As the disease exhibited a tendency to relapse, we judged it necessary to establish a permanent drain from the vertex, to which a blister the size of a crown-piece was applied, and the surface was made to discharge for several months by means of Albespeyre's plaster. When his recovery was complete, the blistered part was allowed to heal. I should have remarked that this gentleman was perfectly bald on his forehead, ver-

tex, and temples, and the skin of the scalp was smooth and shining. A few weeks after the blister was healed, a growth of hair took place in the form of a ring, encircling the blistered surface at the distance of two lines.

Miss M., affected for many years with *tinea capitis* and *psorophthalmia*. The hair on the vertex had become quite grey, and there were several bald spots in the neighbourhood. She was recommended by Mr. Wilde to use the common gas-water as a lotion to her head. After a long-continued use of the remedy, the hair grew on the bald spots, and both it and that on all the affected parts recovered the natural colour. This was the more remarkable, inasmuch as the parts of the head to which the remedy was not applied are still covered with grey hair. Mr. Wilde observed a similar restoration of the colour of the hair from the use of Donovan's brown citrine ointment.

Mr. B., aged about 35, when first seen six years ago, had hair of a greyish colour, from the intermixture of white and black hairs: the latter in comparatively very small number. He complained that his hair had been getting grey and falling out for some time previous, which he ascribed to bad health consequent on impaired digestion. Twelve months afterwards the grey hairs had entirely disappeared, his health and strength having in the meantime much improved, chiefly by travelling.

Mrs. —, aged 35, had a very severe attack of fever, after recovery from which her hair turned quite grey, and began to fall out. The head was then shaved, and the shaving was repeated several times, after which there was an abundant growth of hair of the original auburn colour.

Dr. Stokes has communicated to me the following fact relative to the hair, and which forms a singular exception to what is usually observed in phthisis. A young lady, of fair complexion and dark hair, became consumptive, and her luxuriant hair rapidly fell out and deteriorated, being replaced by a thin, woolly, coarse crop. The tubercular disease proceeded slowly, lasting about fourteen months. About six weeks before her death a new crop of hair appeared, if possible more beautiful than her original hair, and grew with such unexampled rapidity that at the period of her death she had a splendid head of hair. Physiologically it is deserving of remark that, though this young lady had considerably emaciated in her body and limbs, her face and features preserved all the rotundity and plumpness of beauty; the scalp, therefore, was in all probability by no means deficient in nourishment. The unexpected appearance of hair excited vain hopes in the breast of the poor patient and her friends, who could not be persuaded that this new product of life was but the forerunner of death.

A friend of mine, a practitioner of great experience, now residing in Athy, came to Dublin to consult me very recently. He is seventy years old, and labours under various nervous symptoms, which commenced about two years ago with *hemicrania* of the right side of the head, attended with a singular and exquisitely painful affection of the right half of the scalp, which was as sore as possible to the touch, and each hair in it felt, as my friend expressed it, like a minute poinard implanted in the skin. Nothing could exceed his agony for four days and nights, during which he never closed an eye: at last a minute pustule, that soon desiccated, appeared round each hair, and in a few days his scalp got well. During the height of the disease the engaged half of the scalp was red, but not erysipelatous. As far as I can understand this remarkable and rare case, it must be considered as an acute inflammation

of the bulbs of the hair : strange enough, it was not followed by a falling out of the hair.

Whatever opinion may be formed as to the relative value of the various theories formed to account for the growth and colour of the hair, it seems clear that some practical deductions follow from the foregoing facts. In the first place, it is evident that the growth and colour of the hair may be most beneficially influenced by the application of stimulants to the skin ; and it is more than probable that numerous cases of baldness and want of colour would yield to such an application of stimulants, if we only knew how to proportion the quantity of stimulants to the exigencies of each individual case. There is here a difficulty, probably insuperable, but which still we should try to surmount. Certain it is that many popular remedies which enjoy a great reputation contain a combination of oily and stimulating substances, such as castor oil, goose-grease, and tincture of cantharides. This composition, with the addition of a little sweet-smelling essential oil, often exerts, in my opinion, a decidedly beneficial effect when rubbed into the roots of the hair by means of a piece of flannel. The quantity of the tincture of cantharides should not exceed ʒi. to the ounce, and our object should be by each application to produce a slight evanescent redness while the skin remains anointed with oil. When it is believed to be essential to produce a rapid desquamation of the epidermis, short of vesication, I know no better means than painting over the surface with the tincture of iodine every third or fourth day. A good pomade for the hair consists of equal parts of castor oil and lard, with the addition of attar of roses, about eight drops to four ounces.

To many it may appear trifling and beneath the dignity of a practical physician to dwell so much on this topic ; but in truth mankind have always attached much importance to this ornament of the human body, and grey hairs and baldness are to many quite as appalling as real disease, or even death. This feeling is not confined to the moderns, for we find the poets and the moralists of antiquity abound in passages to the same effect. The physician who has witnessed the strange degradation of appearance which follows the shaving of the female head in fever, must acknowledge that the grief of the ancient widow who laid her tresses on the tomb of her deceased husband,* had at least a greater show of poignancy than is exhibited by our modern ladies, who on these occasions partially conceal, but never destroy, this cherished ornament. And they are probably right, for the operation of natural causes renders the growth of hair slower than the decrease of sorrow. I was not aware of the great degree of beauty which the hair imparts, until Mr. Clibborn showed me, in the Royal Irish Academy, a skull of a Peruvian female, in which the bones of the face and forehead were as usual exposed, but the desiccated scalp still bore a luxuriant crop of flowing ringlets, which imparted no small degree of beauty even to this death's head.† I here may mention, that I once attended a lady upwards of eighty years of age, who exhibited all the usual appearances of withered senility, but who had a magnificent head of coal-black hair. Contrary to what might

* So in the *Helena* of Euripides, the heroine exclaims when about to simulate the widow's garb :—

ἐγὼ δ' ἐς οἴχους βάσα βοστρύχους τεμῶ, &c.
 "I will go in, cut off these crisped locks," &c.

† The mummy here referred to is now in the Museum of the Royal College of Surgeons. See Mr. Wilde's description of it in the "*Parthenon*," for the 15th of June, 1839, where the head and hair are figured.

be expected, she bitterly deplored the circumstance, for this emblem of youth was but ill assorted with every other external sign of old age. "Two years ago," said my patient, "my maid, in combing me, discovered a grey hair. I was overjoyed, and hoped that others would speedily follow ; but none have appeared since." She was the only person who ever asked me for a *receipt* to turn the hair grey.

We are aware that the least highly organised tissues are capable of being reproduced after being destroyed ; now, many facts have come under my notice which seem to authorise the conclusion, that when the original stock of bulbs has been destroyed in the scalp, a new stock is frequently manufactured by the powers of nature, and thus an entirely new crop of hair arises. It is well known that cases have occurred where supernumerary teeth have been produced : and, in the celebrated Countess of Desmond, it was asserted that when the adult set of teeth failed from old age, a rejuvenescence took place, and a third set of teeth appeared. I was always inclined to doubt the truth of this assertion, until the late Dr. Curran related to me the following particulars respecting his great-grandmother, Mrs. Waterworth. She had always been a remarkably healthy woman, was extremely active in her habits, and died apparently of mere senility, aged ninety-five. When about eighty, her sight, which for fifteen years previously had been so weak as to prevent her reading, became so completely restored that at the time of her death she could, without spectacles, thread the finest needle, and read, without fatigue or difficulty, the very smallest print. She, about the same time, got a completely new set of teeth. The exact number of teeth that grew at this unusual period I have not been able to ascertain ; but of the fact, as stated above, there can be no doubt. This rejuvenescence was not consequent on any change of place or habits, but it was accompanied by a very considerable increase of strength, which continued to the last. Dr. Curran had a very curious copy of Mr. Easton's valuable work on longevity, in which the author has added in manuscript notes many interesting particulars respecting Mary How, of Mapleton, Derbyshire, who at the age of 110 got several new teeth, whilst her hair resumed its former colour ; Peter Bryan, of Tynan, County Tyrone, who cut several teeth at the age of 117 ; Lady Angelique Domenieux de Sempe, of Nouillac, in France, who got teeth at 90, and lived thirteen years afterwards ; Margaret Melville, of Kelle, Fifeshire, who lived to 117, and got teeth at 100 ; John Minnikin, of Maryport, Cumberland, whose hair grew so abundantly in his old age that twenty wigs were made of it between his 80th and 112th years ; and many similar instances, of many of which Mr. Easton was himself cognizant. These cases are, perhaps, not more extraordinary than that the costal cartilages should not have been ossified in the case of Old Parr, who lived to 152, a fact for which we have the authority of a committee of the Royal Society (among whom was the great Harvey), appointed to make the *post mortem* examination. As an example of a somewhat similar exception to general rules, Dr. Curran mentioned to me the case of his friend Dr. Harrison, now a practising physician in the Isle of Man, who grew one inch in stature between his thirtieth and thirty-second year.

In Tschudi's Travels in Peru, it is stated that the Indians of Peru are remarkable for their longevity ; instances are not rare of Indians living to be 120 or 130 years old, and retaining full possession of their bodily and mental powers. The Indians retain their teeth and hair in extreme old age, and it is remarkable that their hair *never becomes white, and very seldom even gray* ; those individuals whose advanced ages (above 100 years) have been mentioned, had all fine black hair.

VENEREAL DISEASES.

LECTURE LXII.

GONORRHOEA.—GONORRHOEAL RHEUMATISM.—GONORRHOEAL OPHTHALMIA.

I SHALL now, gentlemen, proceed to lay before you some observations on syphilis. Bell, Hunter, Matthias, Pearson, Carmichael, Rose, Hennen, Colles, Wallace, and Ricord have so diligently investigated the history, symptoms, and special pathology of venereal affections, that I consider it unnecessary to touch upon these matters at present, and consequently I mean to confine my remarks to a few controverted subjects connected with the general pathology and therapeutics of syphilitic diseases.

I hold in my hand a report by Dr. Roe, containing a return of the venereal patients treated in the 38th Regimental Hospital, from the 11th of June, 1836, to the 15th of November, 1837; giving in separate columns the names, ages, forms of disease, periods of admission and discharge, duration of the treatment, and remarks. The compiler, Dr. Roe, was a fellow-student of mine, educated in Dublin, and always noted for his intelligence, accomplishments, and steadfast zeal for his profession. Under the late Mr. Colles, and the surgeons of the Lock Hospital, he had ample opportunities of witnessing the effects of the mercurial treatment of syphilis. He has treated the disease in the East Indies, the Ionian Isles, and at home, and from his habits of observation, sagacity, and attention any statement coming from him must be very valuable. During the period from the 11th of June, 1836, to the 15th of November, 1837, the number of patients treated in the hospital of the 38th Regiment was 231. Of these, 80 were affected with gonorrhœa, 87 with chancre, 36 with bubo, 23 with hernia humoralis, and 4 with chancre and bubo. 90 were under 20 years of age; 95 from 20 to 25; 23 from 25 to 30; and 17 from 30 to 40, and upwards.

Several caught the infection more than once during the space of time mentioned. Thus, Henry Carter was admitted for gonorrhœa on the 11th of June, 1836; again for gonorrhœa on the 35th of February, 1837; and again for the same on the 4th of May, 1837. John Adams, twice for gonorrhœa; Arthur Nesbitt, twice for chancre; John Williams, twice for chancre; William Bexham, twice for chancre; John Jess, once for gonorrhœa, and a second time for bubo. With respect to the duration of these cases, treated wholly without mercury, Dr. Roe gives the following summary:—The cases of gonorrhœa were on an average 15, 3-7th days under treatment; chancre 21, 4-11th days; bubo, 27 $\frac{3}{4}$; swelled testicle, or hernia humoralis, 11, 3-5th; severe cases of chancre, with bubo, 18 $\frac{1}{4}$ days.

The following was the general plan of treatment pursued by Dr. Roe: and first with regard to gonorrhœa. The men on admission, having been washed with warm water and soap, were ordered to take an aperient mixture, composed of sulphate of magnesia and tartar emetic, every third hour, until the bowels were freely opened. A small piece of lint was applied to the orifice

of the urethra, and a short roller soaked in cold water was passed round the penis, to keep the parts cool and clean. If there was much ardor urinæ, the patient was ordered to foment the part, and syringe with warm water every second hour. As soon as the ardor urinæ abated, an injection of sulphate of zinc—two grains to an ounce of water—was used four or five times a day; as the smarting in passing water abated, the proportion of sulphate of zinc was increased to five grains to the ounce. He then commenced bathing the parts with cold water, and prescribed balsam of copaiba, turpentine, or cubebs. The patients were invariably confined to bed while under treatment, used only spoon-meat or milk diet, and barley water for drink. Every third or fourth morning a dose of Epsom salts, with or without tartar emetic, was taken to keep the bowels free. In a few obstinate cases, injections of sulphate of copper or nitrate of silver were employed, with the occasional use of the bougie, or a small blister over the track of the urethra.

From this simple, but excellent and efficacious plan of treating gonorrhœa, we come now to the treatment of chancre. This is a point deserving of your attention, and peculiarly important with reference to the subject at present under consideration. The patients, on admission, were purged with Epsom salts and tartar emetic, and were ordered to apply a bit of lint, wet with a solution of sulphate of copper, to the chancres, renewing the application every second hour, and using the moistened roller to keep the parts cool and retain the dressings. Milk diet was prescribed as before, and a dose of salts, or salts and tartar emetic, taken every second morning. The parts were frequently bathed with cold water, particularly if there was any pain in the groins, and the chancres were occasionally touched with nitrate of silver, or sprinkled with red precipitate to expedite the cure. Calomel was rarely given; and when administered, not for the purpose of affecting the mouth, but merely as an alterative, and in combination with tartar emetic. The men were all confined to bed, the most perfect cleanliness insisted on, and the bowels kept in a soluble state. Buboës were treated in a similar way, but with a more rigid observance of the antiphlogistic regimen.

Buboës were often seen without any ulcers on the penis, or they have appeared after the ulcers have healed. They were constantly bathed with cold lotion; and by this means, aided by the solution of tartar emetic and salts, they were frequently dispersed. If, in spite of these measures, they became enlarged, red, and tender, a warm poultice, three times a day, and frequent fomentations, were employed. If there was still any chance of resolution, small doses of calomel and tartar emetic were administered, and the poulticing continued, care being also taken to keep up a loose state of the bowels by saline purgatives. In general these means were followed by the desired effects. If, notwithstanding, the buboës increased in size, became softer, and exhibited proofs of fluctuation, Dr. Roe opened them by applying the *kali purum* to the diseased surface. He then continued the fomentations and poultices, dressed the ulcer with red precipitate, and when it began to assume a healthy appearance, applied a compress and roller to keep the edges of the ulcer together, and repress exuberant granulations. At the same time the patient took decoction of bark with sulphuric acid, or sarsaparilla with nitric acid; these, with a more generous diet, and a moderate use of porter, generally succeeded in producing a speedy and permanent cure.

Among all Dr. Roe's patients there was only one case of secondary syphilis. This man, who laboured under buboës at the time of his admission, was in bad health; the buboës were extremely chronic, and difficult of cure. He

was treated during the winter, and returned some time after being discharged, complaining of cough and sore throat, with a papular eruption over the breast, back and thighs. He was treated with alterative doses of calomel, combined with tartar emetic and opium, and used the warm bath three times a week. His bowels were kept open, a generous diet, with porter, was allowed, and he took the decoction of sarsaparilla with nitric acid. He recovered completely, and is now stronger and in better health than he has been for many years. A solution of alum as a gargle, and the use of volatile liniment, with flannel, externally, was all that was found necessary for the cure of his sore throat. He was about a month under treatment.

Such was the plan of treatment followed by Dr. Roe, and that it proved eminently successful is shown by the result, for out of 231 patients, of whom 87 had chancre and 36 bubo, there was only one case of secondary syphilis. Of these facts I have been myself a witness, and they are certainly of great importance. I do not think that more gratifying results could have attended the best-regulated mercurial treatment. I may observe, however, that soldiers enjoy many advantages which civilians of the lower class are, in a great measure, deprived of. They are not left to their own discretion as to the time they should apply for advice, or to the mode in which they should conduct themselves during the course of treatment. Soldiers are generally inspected by the medical officer once a week; the glans, prepuce, orifice of the urethra, and groins are carefully examined, so that any trace of disease cannot escape detection. In this way the disease is attacked at its very commencement, and checked at once; a circumstance which, for reasons hereafter to be explained, has an important influence on the proportion of the cases of secondary syphilis.

Again, during the process of cure, the men are not allowed to walk about, take exercise, indulge in the use of intoxicating liquors or stimulant diet, or expose themselves to the vicissitudes of the season. It may be also observed, that soldiers, from the care employed in the selection of the recruits, from their mode of life, diet, exercise, and regular hours, are some of the healthiest members of the community; and therefore enjoy, in a very remarkable degree, the advantage of resisting infectious diseases, or getting rid of them sooner than persons of feeble constitution.

There are some points in Dr. Roe's treatment to which I shall now advert. In gonorrhœa he begins, internally, with cooling antiphlogistic medicines, and afterwards passes to the use of internal stimulants. He also applies local antiphlogistic means in the commencement, directing the patient at first to syringe with tepid water, which is exchanged for a mild astringent injection as soon as the ardor urinæ abates; and he afterwards employs stronger and more astringent injections. When neglect or an injudicious treatment has allowed gonorrhœa to attain the second stage—that of inflammation, it will be always right to apply the antiphlogistic method generally and locally; but this does not preclude the use of injections: they must be skilfully administered, for fear of injuring the inflamed urethra, and at first should merely consist of one drachm of mucilage dissolved in seven of water. After using this two or three times, one grain of sulphate of zinc may be added. On the morrow and day after, the same may be continued, and then it may be rendered more active by increasing the quantity of sulphate, and adding other matters, of which more hereafter.

In order to prevent you from misunderstanding my meaning, it is necessary to explain that gonorrhœa may be considered as exhibiting three different

stages. In the first, immediately succeeding the period of incubation—during which the infection has as yet produced no perceptible symptoms, a very slight oozing of whitish mucus takes place from the urethra, and a little tingling is felt in that passage, the mucous membrane then exhibiting an incipient redness. No pain is felt in passing water. This stage seldom lasts more than two days; but occasionally it does. When gonorrhœa is to be violent, it is of short duration; when mild, of longer. It passes gradually into the second or inflammatory stage, with its well-known *profluvium*, ardor urinæ, and other symptoms; and this again, in due time, is succeeded by the third stage, or that of decline. The first and last stages are peculiarly suited for the employment of astringent injections.

I do not know any practical point on which greater diversity of opinion exists than the administration of injections in gonorrhœa. In Dublin, students are generally taught that their use is improper and dangerous. The following are the chief objections to which they are said to be liable:—1st, They do not diminish the urethral inflammation though they dry up the discharge, and consequently they lay the foundation for stricture, or more immediately occasion the inflammation to descend along the urethra, until it extends to the membranous portion, the prostate, or even the bladder. 2ndly, Their use renders swelled testicle and sympathetic bubo more frequent. 3rdly, It is argued that the use of any measures, except such as are purely antiphlogistic, must be improper in a disease accompanied by so many indubitable signs of inflammation.

Let us closely examine this last objection, and we shall find it to possess more apparent than real weight; for analogy proves that the principle on which it depends is by no means universally applicable, particularly in cases of specific inflammation. When surgeons placed their sole reliance on antiphlogistic measures, local or general, in the treatment of purulent ophthalmia, the results were truly disastrous; and however exhausted the patient became from excessive bleeding by the lancet and leeches, aided by large and frequently-repeated doses of tartar emetic internally, the local inflammation proceeded in its rapid and destructive course, scarcely influenced, never effectually checked, by the treatment adopted. I have seen a man treated (in the Meath Hospital, by myself, and the late able ophthalmic surgeon, Mr. Hewson) with bleeding, general and local, employed, I might say, to excess, and aided by rapid and profuse mercurial salivation: I have seen, in the patient referred to, both eyes destroyed by purulent ophthalmia in a few days. Not long ago, I was called during the night to visit a young gentleman in a hotel; he had gonorrhœa, and went to bed without any complaint of the eyes, but was soon awakened by pain in the left eye. It was evidently purulent ophthalmia, and was cured in the course of a few hours by relays of leeches, and a strong sulphate of zinc collyrium, carefully applied.

After thousands had lost their vision from the effects of this disease, it was at length discovered that some who adopted a totally different mode of practice, and who treated the purulent ophthalmia in its very commencement with strong astringent and corrosive applications, were eminently successful. This led many army surgeons, more especially Mr. Guthrie, to investigate the subject with care. You are aware of the important practical results at which he arrived, and of the great improvement which has consequently taken place in ophthalmic surgery, leading to the application of solid nitrate of silver, or its concentrated solution, of sulphate of copper, &c. &c. to the mucous membrane of the eye in the first stages of purulent ophthalmia—a mode of

treatment which our predecessors would not have hesitated to pronounce most hazardous and destructive.

That astrigent and stimulant collyria are applicable in the incipient stages of some other species of ophthalmia, as well as the purulent, is now familiarly known to surgeons. The following example of its utility in the latter occurs in a work lately published on the Oases of the Libyan Desert, by Mr. Hoskins. It is necessary to remark, that the ophthalmia described by Mr. Hoskins, and so common both among the natives and foreigners in Egypt, is essentially a purulent ophthalmia, which, however, attacks with very different degrees of intensity, being in some mild and chronic, in others most acute, and suddenly destructive of vision.

"Nov. 5th, 1832.—I was confined to my tent the whole of this day by a painful attack of ophthalmia; and although in the morning it was very severe, yet by double doses of the contents of an inestimable bottle, I have nearly subdued it. As some of my readers may wish to know what this wonderful vial contains—what this infallible remedy for such a baneful complaint can be—I will tell the history of it, though I cannot fully gratify the desire of the curious. The purser of the French frigate, the *Luxor*, which was built for the purpose of removing one of the obelisks from Thebes, was the fabricator of this extraordinary water. He informed me, when in Egypt, that his father had been attached to Napoleon's expedition to that country, and had then discovered this miraculous cure. From fear of its being analysed, he had never allowed any person to possess more than a very small quantity; but he cured without fee all who came to him, Christian and Mussulman, French and English, Turk and Arab. When this liquor was applied in time, it was found always to stop the most virulent attacks of the disease, and generally relieved in a very few days even those who had been for several months martyrs to the complaint. A Turk, who had suffered for years, was completely cured in a fortnight; and in gratitude to his benefactor gave him a horse richly caparisoned.

"The Frenchman's fame was spread throughout the country, and many came to him as far as from Keneh and Esneh. Even the surgeon of the *Luxor* was so sensible of the value of the remedy, and of its producing no subsequent bad effects, that he sent all the officers and men of the vessel suffering from that complaint to the purser, or to the *hakim* (doctor), as the natives called him. The application was easy to the hakim but most painful to the patient. He let fall a single drop of the water on the ball of each eye, which immediately spread, and from its pungent nature caused, if much irritation existed, the most inexpressible torture. In twenty minutes, or half an hour, this pain subsided, and a little clammy matter was seen to ooze from the eye. The remedy, although violent, did not weaken the eye in the slightest degree, nor in any manner injure the sight.

"Knowing that I proposed to go into Ethiopia, the hakim had the kindness to sell me, for about its weight in gold, a small bottle of this water; but under the express condition that I would neither directly nor indirectly allow it to be analysed. He said that it was his intention to return again to Egypt, and that he expected to be able to make his fortune; but whether he does or not, I feel most grateful to him for having saved me from so much torture, as I have been often obliged to have recourse to the water, and have kept my promise in not allowing it to be analysed. As this person has now left the country, and no further supply is to be obtained, I prize the water most highly, and cannot afford to use it for the relief of mere strangers. The remedy which

we generally find to succeed with the natives, when applied to by them, is sulphate of zinc in strong doses—ten grains being dissolved in an ounce of water, and a drop of this being put in each eye, two or three times a day. This is by no means so certain a remedy as the hakim's water, but in nine cases out of ten I have found it to succeed. When, however, the inflammation and swelling are so great that the eyes are closed, *cupping* is the only effectual remedy.

“Mr. Ponsonby, who travelled with me in Lower Nubia, was attacked with this description of ophthalmia. He sent without delay for the hakim, alias barber, of the village. It was fortunate that the eyes of Mr. Ponsonby were quite closed, for had he seen the hakim, he would scarcely have reposed sufficient confidence in his skill to submit to the operation. The man was actually in rags, and of the most unprepossessing appearance, without a single ray of intelligence in his countenance. His cups were made of the horns of a cow, and his instrument was an old razor, not so decent-looking nor so sharp as a tolerably good stick knife. I offered him a lancet, but he said that he did not know how to use it. Thinking that it would be less painful for Mr. P. to be scarified with a sharp than a blunt razor, I gave the man one of my own; but being unaccustomed to so fine an instrument, and not aware of the much less force it required than his own blunt knife, he cut too deep; I therefore thought it best to allow him to finish the operation in his own way. I must confess, indeed, that he did it very expertly, and I may add successfully, as he effected a very sudden and almost miraculous cure of Mr. P.'s ophthalmia. At Thebes I had two severe attacks of this disease, which incapacitated me from either reading, writing, or drawing. Thanks to the hakim's water, these attacks were fortunately short; but they were painful while they lasted, and most irksome to support.

“To be debarred from all mental enjoyment and bodily exercise—to be in the world, and yet see nothing; and to be without the general resources of the blind, particularly society, this was indeed tiresome. A Turk might probably have amused himself with his beads, but even a Mohamedan's philosophy would have forsaken him in such a situation, especially as the regimen necessary for this complaint requires the sacrifice of the all-consoling pipe. The Arabs and Turks having frequently asked me for medicine to relieve them from attacks of ophthalmia, the water that I applied to their eyes invariably caused them extreme pain; which, however, they bore with great courage and resignation, having implicit faith in the skill of an European. When, however, I desired them to give up their pipes (smoking being extremely injurious) ‘Inshallah!’ (please God!) they replied, but never had the resolution to do so. An opium-eater may refrain from his weed, a drunkard may resign his glass, but I soon found the absurdity of asking an Oriental to abandon his chibouque. Like ice to the Sicilians, maccaroni to the Neapolitans, and grog to the British sailor, they consider it as their staff of life, and conceive it impossible to get through the day without it.”

With respect to the objection that the treatment of gonorrhœa by injections lays the foundation for strictures, I beg most distinctly to deny the truth of the assertion; whatever diminishes the intensity and shortens the duration of the urethral inflammation must tend to diminish, and not to increase, the liability to strictures. Compare the violence and duration of a gonorrhœa, skilfully treated from its very beginning by injections, with a case where no injections are employed—the physician's reliance being exclusively

placed on perfect rest, confinement, fasting, and cooling medicines; compare two such patients—observe how the one is perfectly cured of his disease in a few days, without confinement, and without any deviation from his usual diet and habits (I speak now of two cases coming under treatment in a day or two after the appearance of the first symptoms); and then watch the other through sufferings protracted week after week, until his constitution is debilitated by confinement and low diet: how often do we find the discharge from the urethra increasing daily, in spite of the general and antiphlogistic remedies employed, until it is profuse in the extreme, and accompanied by great ardor urinae, painful erections, irritation of the bladder, and chordee.

Now I will fearlessly assert that a medical man who gets the care of a *recent gonorrhœa in a healthy constitution*, is grievously to blame if he permits this series of bad symptoms to supervene. I do not deny that these symptoms will at length give way to antiphlogistic treatment, leeches along the perineum, stupes, inunction of the skin, covering the urethra with mercurial ointment and belladonna, &c., &c. These remedies will in the end get rid of the disease, but then at what a loss of time and strength! I again repeat the assertion, and I do it emphatically, that a gonorrhœa treated by injections *from the beginning* can generally, in persons of sound constitution, be cured in a few days. When a gonorrhœa has been allowed to continue several weeks, it often so alters the vitality, and probably the structure of the affected tissues, that a cure is uncertain, and frequently the treatment becomes both perplexing and tedious: when a gleet supervenes, then remedies, even the most judiciously selected, frequently fail altogether: these facts prove the necessity of curing the disease in every instance as soon as possible.

But, gentlemen, we must here enter into details, and, first, as to the manner of injecting the urethra. Many believe that the inflammation produced by the specific poison of gonorrhœa is seated chiefly, if not exclusively, in the portion of the urethra near the orifice; and hence they are only anxious to introduce the injected fluid a short distance into that canal. Nothing can be more unfounded than this opinion, and nothing more injurious than the practice to which it gives rise. The inflammation which gonorrhœa produces in the urethra is by no means confined to the third of the canal near its orifice, but even in recent cases it extends much farther; and it cannot therefore be efficiently treated by injections, which do not come into contact with the whole extent of inflamed surface. Unless you yourselves teach your patients how to inject, not one in ten of them will do it properly. Of this an extensive experience has convinced me. Over and over again have I been told that there was no use in trying injections in a particular case, as they had been already tried in vain; and on accurately inquiring into the patient's mode of injecting, the result has been the discovery that he was quite ignorant of the proper method.

The pewter or glass syringe used must be in proper order, so as to work easily with the pressure of one finger; otherwise, when the end is in the urethra, and the patient tries to inject the fluid contained in the syringe, the point is very apt to be hitched against the urethra, in consequence of the force thus suddenly applied. The point of the syringe must be carefully introduced at least half an inch within the lips of the urethra, and the forefinger and thumb of the left hand must then be so applied as to press the lips of the urethra gently on the syringe, so as effectually to prevent the reflux and consequent escape through the orifice of the injected fluid. When the fluid is thrown in, the patient feels it in the urethra, which it distends gently as far

down as the membranous portion, if a sufficient quantity is injected. Some persons have an idle fear about the ill consequences which would arise were any of the injection to arrive at the bladder. An ordinary syringe does not contain more than a drachm and a half, which is about the quantity required for one injection. When the fluid has been injected, the point of the syringe is to be withdrawn, and the lips of the urethra kept closed with the finger and thumb, for at least two minutes, when, the pressure being removed, the injected fluid will be thrown out from the urethra with considerable force, in consequence of the elasticity of that canal. These directions are by no means unnecessary; indeed, I never treat a patient without seeing that he knows how to inject, for I find that many say they know the method who are quite ignorant of it, and who consequently do themselves more harm than good by making the attempt.

It is not my object to enter at present into the especial therapeutics of gonorrhœa, and consequently it would be foreign to my plan to speak of the various substances which may be used in injections; for an account of these I must refer to authors who have written at large on these subjects. As a general rule, you ought to commence with weak solutions of the astringents you prefer, which solutions may be used five or six times a day, and may be daily increased in strength. *An injection should seldom be used so strong as to cause at the time anything like severe pain of the urethra.* In this respect we must not closely imitate the example of *eye-waters*, such as that used by the Egyptian *hakim*. I have, indeed, often known very strong injections used at the first trial, and which, though they produced great pain for many minutes after their introduction, yet were very effectual in rapidly curing the disease, and that without any bad consequences. (This is more especially the case with nitrate of silver, which, although a powerful remedy, I have found unmanageable, and therefore not to be recommended.) Still, however, by far the safer and more prudent practice is to commence with astringent injections, so weak that, when used, they may produce merely a sense of titillation, or of very inconsiderable smarting.

It is often difficult at first to hit off, if I may use the expression, the precise strength required; and therefore I always give my patients particular instructions, and desire them, if the injection is at all too irritating, to dilute it with water to the desired degree of strength. The sensibility of the urethra diminishes very rapidly when an injection of proper strength is applied to the inflamed surface, so that the solution may be daily rendered more astringent. I have told you that astringent injections are suited to every case of gonorrhœa at the commencement of the disease, and that, when properly used during the first, second, or third day, they almost always cut it short. It is not so when the disease has attained its acme, and the inflammation is at its height, accompanied by profuse discharge, chordee, &c. &c. Even then, however, injections properly managed will tend to assist the local antiphlogistic measures; but in such cases we must always commence by using mere mucilaginous warm water, and must add the astringents at first very sparingly, and increase their proportions very cautiously. I omitted to observe, *that always, before using an injection, the patient ought to clear the urethra by voiding a little urine.* Such directions, gentlemen, may appear to many prolix and unnecessarily minute; but not knowing any author who has condescended to give accurate accounts respecting these matters, I have thought it my duty to lay them before you, being convinced of their utility.

It is right also to put you on your guard about the mischief which may

ensue if you attempt to prescribe astringent injections during the secondary or inflammatory stage of gonorrhœa, without previously having ordered such general and local antiphlogistic treatment as is required to diminish the existing inflammation; nor will even this be sufficient to ensure success, unless you take care that your patient remains quietly at home for a few days, and observes a spare vegetable diet. A person who will not follow your directions in these matters cannot use astringent injections during this stage of the disease with benefit or even impunity. In the first stage, and in the third, it is not absolutely necessary to enjoin rest and abstinence; it is, indeed, better and more prudent that the patient should remain in his room, and should observe low diet for a day or two; but in some cases this is impracticable, and then he must, as far as possible, avoid stimulant food and much walking exercise.

In the remarks I have hitherto made, I have merely sought to elucidate the general pathology and treatment of gonorrhœa, and, accordingly, have avoided all details connected with complicated cases, where the disease does not occur in its simple form in a constitution and urethra previously sound.

Where strictures, and previous diseases of the urethra, bladder, or prostate exist, the simple treatment I have recommended is no longer applicable; and the same observation applies to cases badly treated, neglected, or of long standing, and to patients with a weak or scrofulous constitution.

With reference to injections, let me add a few particulars concerning their strength. We should trust in the beginning to weak solutions, such as one or two grains of sulphate of zinc to the ounce of water, which may be used five or six times in the day. When we increase their strength, they must be employed less frequently. It is seldom necessary to use a solution stronger than three grains to the ounce. I am in the habit of employing such a solution, combined with one or two drachms of mucilage, and about ten grains of prepared lapis calaminaris in powder. I lay great stress on the addition of the mucilage; it veils the astringent and irritating qualities of the metallic salt, and renders it more likely to become entangled, and thus be detained for some time in contact with the mucous membrane of the urethra. How the lapis calaminaris acts, unless on a mechanical principle, it is difficult to explain; but of its utility I am certain, having long used this combination as recommended in Thomas's *Practice of Physic*. Some add a little balsam of copaiba; but it has the disadvantage of betraying the patient's secret by its odour.

As I am now only engaged in explaining the general principles on which the cure is to be conducted, I need not enumerate the great variety of astringents which may be employed. One important piece of advice I can give you on this point is, to confine yourselves, as far as possible, to the use of the same astringents. Two or three will suffice for all necessary combinations. By doing this, you will become accustomed to their effects, and will, by habit, be enabled with great accuracy to judge whether it is proper to increase or diminish the strength of the solution in any particular case.

Another rule of practice is, that you must at intervals make the patient leave off injecting, say every second day, for a certain number of hours, for instance twelve, before you examine him, in order that the immediate effects of the astringent may have subsided so far as to allow you to estimate the actual state of the disease. It often happens that the improvement is scarcely perceptible until the injections have been intermitted. This observation leads to another rule, viz., that when you are using strong injections, and have

made an evident impression on the disease, you may leave them off every second or third day, according to circumstances, so as to insure their not being continued beyond the time they are actually necessary. With these precautions I can confidently recommend the use of injections, and maintain that they do not render the patient more than usually liable to strictures, sympathetic bubo, or swelled testicle.

Strictures often occur in men who have never had a gonorrhœa, and swelled testicle and sympathetic buboes are frequently met with in cases of clap, where injections have not been used at all. I do not mean to deny that injections, imprudently or unskilfully managed, may give rise to these accidents. Of this there can be no doubt, nor is the cause very obscure; for we can readily conceive that an injection, ill adapted to the sensibility of the parts, may increase the urethral inflammation. Of all matters recommended for injections, the nitrate of silver seems most liable to this objection.

When gonorrhœa degenerates into gleet, which it is most apt to do in badly treated cases, and particularly in scrofulous habits, the cure is uncertain and troublesome; but as I have nothing to add to the practical precepts which your class-books contain on the subject, I shall not detain you by any further observations.

With respect to the gonorrhœal virus, I entirely concur in the modern opinion, recently confirmed by the experiments and inoculations performed by Ricord, that the poison which causes clap is different from that which gives rise to chancre and secondary symptoms; and that consequently it is quite unnecessary to make use of mercury in order to guard against constitutional sequelæ.

It is well that practical men have at length made up their minds upon this subject. Five and twenty years ago, when I commenced practice, we often concluded the cure of a gonorrhœa by a fortnight's course of morning and evening inunctions, employed for the purpose of protecting the patient against the danger of secondary symptoms.

Ricord employs injections of zinc, or lead, or nitrate of silver, in gonorrhœa, as soon as the acute stage has been removed, or its violence diminished by rest, antiphlogistic regimen, and twenty or thirty leeches to the perineum. He seems to employ the astringent injections generally after three or four days of antiphlogistic treatment, or from the very beginning, where the inflammation is slight. My experience has amply confirmed the assertions of our predecessors, that the same astringent applications which are proper after the diminution of the urethral inflammation, are also proper before it has completely formed itself. I should not have entered so largely on this subject, were I not aware that many practitioners condemn the use of injections altogether, and trust to rest and antiphlogistic measures alone—a method of treatment not only tedious, but in many respects most injurious.

It may be well to remark, that for many years I have not, *in recent and uncomplicated cases*, ordered cubebs, copaiba, or any such medicines internally, having succeeded to my entire satisfaction in the treatment of gonorrhœal patients by means of *general and local antiphlogistic measures combined with injections*. I differ in one point, and one only, from Ricord, who always begins by employing the anti-inflammatory diet and treatment. I have no objection to this method, except the inconvenience to which it necessarily puts the patient; for the loss of a few days and confinement to his room would in ordinary diseases be of trifling consequences; but in cases like the

present the patient is always most anxious to avoid measures which could not be adopted without exciting suspicion.

To such an anxiety I would never yield, when my so doing could in the slightest degree retard or compromise the safe and speedy cure of the disease, neither of which risks are incurred by the prudent application of the plan I have recommended for the treatment of nascent gonorrhœa, and which is sanctioned by older writers, although repudiated and censured by the modern antiphlogistic school.

There are two affections said to be connected with gonorrhœa, and which consequently demand some consideration. I mean ophthalmia and arthritic rheumatism. There are many and highly respectable authorities in favour of the existence of such a disease as gonorrhœal rheumatism. Bacot says that the most usual form consists in a painful and swollen state of the knees and ankles, which seldom comes on until the decline of the gonorrhœa, and is most commonly met with in young men of a florid complexion and a delicate strumous habit; the articular affection is sometimes suddenly relieved by the appearance of an eruption of papulæ in clusters, or of pustules in very minute patches. Vetch describes this form of rheumatism as most intractable; I must refer you to his work and Bacot's for an account of the proper treatment, as I have not myself had sufficient experience in the disease to enable me to speak decidedly on the subject.

I saw with Dr. Nalty a gentleman about thirty-five years of age, who was afflicted with his fourth gonorrhœa, and in whom the order of symptoms was very remarkable and deserving of notice. In him each gonorrhœa ran the usual course, until the period when the running and urethral inflammation began to decline; then invariably (and that each of the four times he was attacked) his eyes became very painful, red, watery, and intolerant of light, presenting at first all the appearance of simple acute conjunctivitis, the result of cold. The conjunctiva covering the sclerotic soon became very much affected, but exhibited no tendency to secrete pus or become swollen, so as to form chemosis. In these important particulars the inflammation manifested differed from the purulent form. In a few days the sclerotic, and afterwards the internal tissues of the eye-ball, were inflamed, and vision thus seriously impaired for the time. It does not, however, appear that the pupil was ever disfigured or the iris engaged, so far at least as concerns its margin and anterior surface. The redness of the eye-ball was diffused and general, and not restricted, as in some cases of true internal syphilitic ophthalmia, to a zone at some distance from the cornea. This ophthalmia required very active local depletion, and yielded to treatment with much difficulty.

At our second visit we found that a very minute ulcer had formed on the cornea. The measures advised consisted of colchicum internally, slight scarifications of the inner surface of the lower eyelid, and on the next day a drop of the solution of nitrate of silver, four grains to the ounce, to be applied to the eye itself.

It is to be particularly remarked that during the increase and acme of the ophthalmia, the urethral discharge was always lessened, but by no means cured; and if at any time this discharge increased, an immediate diminution of the violence of the ophthalmia ensued. On this point our patient was quite clear. So far, then, respecting the ophthalmia; let us now follow the further development and succession of symptoms.

Invariably after the ophthalmia had lasted for some days, one or other of his joints became affected with very acute inflammation; and when this was

about to subside in the joints first attacked, a new inflammation was set up in some other joint; thus, the knees, ankles, elbows, &c., became successively and violently engaged, each in its turn being red, tender, painful, hot, and refusing to allow its ordinary motions. The arthritic inflammation was sometimes so violent as to leave an impairment of motion and a stiffness of the joint which continued for months after he had otherwise perfectly recovered. When I saw him he had sciatica of the left leg, as well as the usual arthritis.

This case, gentlemen, is very instructive, and proves beyond a doubt the existence of an arthritis and an ophthalmia consequent on gonorrhœa; as the ophthalmia had all the characters of rheumatic ophthalmia, we must attribute its origin to an impression made on the constitution by the gonorrhœa: here, as the articular inflammation and the ophthalmia had one and the same character, and as the affection of the joints could not of course be produced by contact of the urethral discharge, we must admit that this could also have nothing to do with causing the inflammation of the eye. This is important, and demonstrates that at least one species of ophthalmia is caused by gonorrhœa independent of direct infection. The existence of the sciatica is also very remarkable.

Sir Philip Crampton, who afterwards saw this case in consultation, says that he has met with several similar, and he is of opinion that some of them essentially consisted in a gouty inflammation of the eye and joints, excited and called into action by the gonorrhœa.

Sir A. Cooper, who was the greatest of British surgeons, says that gonorrhœal rheumatism is not an unfrequent disease. He describes a case very similar in details to that I have already laid before you:—"I will give you," says Sir Astley, "the history of the first case I ever met with; it made a strong impression on my mind. An American gentleman came to me with a gonorrhœa; and after he had told me his story, I smiled and said—do so and so—(particularizing the treatment), and that he would soon be better; but the gentleman stopped me, and said, 'Not so fast, sir; a gonorrhœa with me is not to be made so light of—it is no trifle; for in a short time you will find me with inflammation of the eyes, and in a few days after I shall have rheumatism in the joints; I do not say this from the experience of one gonorrhœa only, but from that of two, and on each occasion I was affected in the same manner.' I begged him to be careful to prevent any gonorrhœal matter coming into contact with the eyes, which he said he would. Three days after this I called on him, and he said, 'Now you may observe what I told you a day or two ago is true.' He had a green shade on, and he had ophthalmia in each eye; I desired him to keep in a dark room, to take active aperients, and apply leeches to the temples. In three days more he sent for me rather earlier than usual for a pain in one of his knees; it was stiff and inflamed. I ordered some applications, and soon after the other knee became affected in a similar manner. The ophthalmia was with great difficulty cured, and the rheumatism continued many weeks afterwards. This case struck me very forcibly, and I asked Mr. Cline whether he had ever seen the rheumatism proceeding from gonorrhœa, and he replied, 'several times.' The next case did not surprise me so much, and now and then, ever since, I have met with similar ones. It is by no means an unfrequent occurrence for gonorrhœa to produce a rheumatic and painful affection of the joints; whether it be by the absorption of the poison, or the constant irritation produced by the irritation of the urethra, I do not know, but certain it is that gonorrhœa produces ophthalmia and rheumatism, and that when not a single drop of matter has

been applied to the eye. The inflammation generally attacks both eyes, and is of long duration ; it requires the same remedies as are used in gonorrhœa ; balsam of copaiba or some form of turpentine must be exhibited ; either the oil of turpentine, balsam of copaiba, or olibanum. I do not recollect to have met with a description of it in any surgical work, but whoever has practised at all must have frequently met with it."

Such, gentlemen, is the information which this celebrated man has given us on this subject. From this it is quite clear that he does not define or point out the different species of gonorrhœal ophthalmia and their different exciting causes ; neither is his description of the American's sore eye very full and explicit ; it is enough so, however, to prove that this ophthalmia was not purulent, but rheumatic.

It does not seem necessary to assume the absorption of any poison to account for arthritis and ophthalmia occurring in gonorrhœa. Of all parts of the body the joints are the most liable to be associated in inflammation with distant parts, and hence ordinary arthritis so often gives rise to pericarditis, hepatitis, ophthalmia, &c., &c. We do not think it necessary to assume the absorption of a poison when a urethral stricture occasions ague—an occurrence quite as remarkable as the production of arthritis by gonorrhœal irritation of the urethra.

When any important part of the body becomes inflamed, there is no saying in what organ diseased action may commence as a consequence. Thus I have seen an inflamed state of the œsophagus, caused by a clumsy probang roughly passed, give rise to inflammation of the mucous membrane of the bladder.

When Sir Astley Cooper published his Lectures in 1823, the subject of gonorrhœal ophthalmia had not received the attention its importance merits, and opinions of surgeons were very varied and contradictory, of which I can offer no stronger example than the fact that, in part of that very course of lectures, Mr. Green, who lectured for a long time during Sir Astley's absence, expressed himself in a manner quite opposed to the opinion of Sir Astley, who had said that gonorrhœa is capable of producing an ophthalmia through the medium of the constitution. In fact, nothing satisfactory was published on gonorrhœal ophthalmia until Mr. Lawrence's Treatise on the Venereal Diseases of the Eye appeared in 1830, of which work 127 pages are occupied with a description of the three different species of gonorrhœal ophthalmia, with numerous cases.

This distinguished surgeon and physiologist has done more than all who preceded him to illustrate this subject, and I most cordially recommend to your attention the above invaluable treatise. He denies (and in this I agree with him) the assertion, hereinafter to be noticed, that the matter from a gonorrhœal urethra cannot by contact produce disease in the eyes of the patient himself, and he brings forward many examples to prove the contrary. He divides the disease into three species:—1st, acute or purulent and destructive gonorrhœal inflammation of the conjunctiva ; 2nd, mild gonorrhœal inflammation of the conjunctiva ; 3rd, gonorrhœal inflammation of the external tunics and iris.

It is of importance to recollect that this latter species does not exactly deserve the name of metastatic, for it often comes on without any, or at least a very partial, subsidence or diminution of the urethral discharge.

Some authors, as Scarpa, Boyer, Pearson, and Beer, deny the possibility of a severe purulent ophthalmia being caused by the contact of any gonorrhœal fluid, and assert that its application to the eye merely gives rise to a trifling

and temporary irritation. More recent writers do not, however, acquiesce in this opinion. Thus, Mr. Middlemore sums up the matter with the two following conclusions:—"1st. That by far its most usual mode of production is by the contact of gonorrhœal matter, proceeding from the urethra or vagina of some other person, not from that of the individual himself. 2nd. That it is extremely improbable that any individual can communicate the disease from his urethra to his conjunctiva by touching the latter membrane with the gonorrhœal discharge."

Were this latter position established on a secure and firm basis, I would regard it as one of the most interesting and curious results of modern investigation. I must, however, confess that I feel very doubtful of its accuracy, and that for the following reasons:—In the first place, I have seen a case where a gentleman was most probably infected with purulent ophthalmia in consequence of matter from his own urethra being brought into contact with his eye. I say most probably, for the nature of the case almost necessarily precludes the attainment of certainty with regard to such matters, for very obvious reasons. In the second place, Ricord's experiments proving the facility with which a chancre can be produced in any part of the skin by means of matter taken from a chancre in the same individual—these experiments, I say, throw a heavy shade of doubt on the probability of the general doctrine, that an infectious fluid produced by one part is innoxious to the same person in another part.

The poison of itch manufactured by one part of the skin is often transferred by the nails to another part, and the clothes worn by an itchy patient are capable of not only producing the disease in another, but in himself when cured. Many other similar examples might be brought forward, but enough has been said to show that the general analogy is not favourable to an opinion, which I cannot help thinking has been founded on facts and experiments not sufficiently numerous or varied. Dr. Vetch, indeed, "took matter from the eyes of persons labouring under acute purulent ophthalmia, and applied it in each case to the urethra of the same individual. No disease was excited. But when he applied the same matter to the urethra of a different individual, it produced a violent gonorrhœa; hence he argues that a person cannot infect himself, but may another."

You observe that this is pre-eminently a practical question; for if we agree in Dr. Vetch's conclusion, it is quite needless to impress on our gonorrhœal patients the necessity of scrupulously guarding against the danger of infecting their eyes by the matter secreted by their urethras. Where the danger is so great, and where, should such an infection be possible, the loss of one or both eyes may be the result, I would never trust to mere habits of cleanliness; I would enforce them by the fears of infection.

With respect to the production of a violent and destructive purulent ophthalmia, in consequence of the application of gonorrhœal matter to the eye, there can be no doubt whatsoever. Mr. Lawrence cites many examples, and I have seen several. Thus, some years ago, a poor woman made use of a vessel soiled by gonorrhœal matter to wash her own face and two of her young children. They all got purulent ophthalmia, and two left this hospital blind. On the whole, gentlemen, I think that we can safely draw the following conclusions concerning gonorrhœal ophthalmia:—

1st. A species of severe ophthalmia may be produced through the medium of the constitution, in persons liable to gonorrhœal rheumatism or arthritis.

This species attacks the conjunctiva, sclerotica, and internal tissues, and resembles gouty and rheumatic ophthalmia.

2nd. Another dreadfully violent species of ophthalmia is produced by the contact of gonorrhœal pus. This closely resembles Egyptian ophthalmia.

3rd. It is probable that another and a much milder species of conjunctivitis is produced by the contact of gonorrhœal discharge of less violence; and such was the opinion of the celebrated Beer. The fluid taken from the variolous pustule or the vaccine vesicle during their early stages will not communicate their proper infection; in the same way the discharge from an incipient or declining gonorrhœa may act very differently on the eye from the puriform fluid secreted by the urethra during the acme. The only doubt which remains on my mind with respect to this milder conjunctivitis is, whether it, too, may not be produced through the constitution. We have seen that a violent ophthalmia and arthritis may thus arise, and consequently we can easily imagine it possible for the same cause to give rise to a constitutional impression capable of originating a mild ophthalmia unaccompanied by arthritis.

In the gentleman whose remarkable case I have related, and who was once treated for the ophthalmia by Mr. Wardrop, the very first gonorrhœa he had ended in the formation of bad deep-seated stricture, although the plan of cure adopted had been from the beginning antiphlogistic, and he had been confined to bed for the greater part of the time, and kept on low diet on account of the arthritis. This, with numberless other similar facts, proves that the chances of stricture are augmented by whatever prolongs the duration of the urethral disease, particularly in strumous habits, such was that of the gentleman referred to. No doubt, injections injudiciously applied may increase or prolong urethral disease, and thus occasion strictures; but if they diminish or cut short inflammation, I cannot conceive on what principle they can originate strictures.

LECTURE LXIII.

SYPHILIS—THE MERCURIAL AND NON-MERCURIAL PLANS OF TREATMENT—
DR. FRICKE'S INVESTIGATIONS.

GENTLEMEN—The pathology and treatment of the venereal disease have engaged the attention of our ablest men since the days of Hunter, and have of late years, as you are all aware, undergone considerable modification and improvement. Still, however, much variety of opinion exists respecting both these subjects, as may be proved from the following facts:—In this city, for instance, the late Mr. Colles and Mr. Carmichael professed opinions very different from each other, and their high reputation ensured to each a numerous host of followers. We have here, consequently, two rival schools, whose teachers disseminate opposing doctrines. This want of fixed opinion is felt in London as well as Dublin, and displays itself in a not less marked manner amongst the practitioners of Paris, Hamburg, Vienna, and Berlin. If you compare together the modes of practice pursued by that highly-instructed and intelligent class of medical men—the surgeons of the British army—you will find the same want of unanimity, and consequently the inmates of the venereal wards of one regiment are often treated in a manner the very reverse of that pursued by the surgeon of the other regiment stationed in the same barrack, of which I have seen some striking instances in the Dublin garrison. Matters are quite as bad in the Prussian army. In a letter which I received from Dr. Robert Froriep, the distinguished pathologist of Berlin, he says, “I have taken advantage of the vacation to examine the Medical Reports of the Army, having obtained the kind permission of the physician-general, Doctor Lohmeier, for that purpose; but I could not make out any thing likely to assist you in your researches; in fact, these documents furnish *data* apparently the most contradictory. Thus, one report praises the mercurial, and another the non-mercurial treatment; while in almost no case do we find the symptoms, treatment, and results detailed with sufficient precision to enable us to arrive at any thing like satisfactory conclusions.”

In the following lectures I do not propose to solve the difficulties which embarrass this important question, neither do I come forward as an advocate on either side; my time is too much occupied to allow an examination of this subject in all its details; and without such an examination it would be premature, nay, impossible to arrive at a satisfactory conclusion. My object in touching on the matter is less ambitious; and I come forward merely as a contributor of materials, chiefly derived from German sources, and partly my own, which materials may perhaps prove useful to others employed in the elucidation of this important subject. From an extensive correspondence with practitioners in various countries of Europe, I find that everywhere a great division of opinion exists; and we have reason to believe the same of North America. In the latter country, however, the non-mercurialists are gaining ground, as appears from articles published in the American journals.

Under these circumstances, and in this embarrassed state of opinions, some attempt ought to be made to obtain more accurate data. If the matter were taken up as its importance deserves it should be, by some medical body or association of eminence, individuals might be encouraged to inspect the chief hospitals of Europe and America, and thus obtain accurate information. Were application made, from a proper quarter, to the heads of the medical department in the English, French, Prussian, and Austrian armies, it would, no doubt, elicit much important matter. Until some public body, or some enterprising and zealous individual, collects from every quarter that information which is so easily attainable on the spot, but so difficult to acquire at a distance, this great practical question must still remain unsolved; for its solution will be only then possible when the results of the opposing methods have been ascertained and contrasted, in various climates and among various races of mankind.

It is allowed by all continental writers of celebrity that British practitioners have the credit of having been the first to point out the benefit of the non-mercurial treatment, in many cases where mercury was supposed to be necessary. Matthias deserved great praise for the discrimination and judgment he evinced in distinguishing the effects of mercury acting injuriously on the constitution, from the effects of the venereal poison.

Mr. Carmichael of Dublin was, however, the first who materially improved this important practical branch of our profession, and taught in a clear and scientific manner when mercury ought or ought not to be exhibited. Mr. Green of Bristol has published, in the second volume of the Transactions of the Provincial, Medical, and Surgical Association, an excellent *resume* of the history and progress of opinion on the non-mercurial treatment, and has added many interesting cases observed by himself. From what he has seen and read he draws the following inferences: that every form and stage of venereal, except iritis, can be completely and better treated without mercury than with it; that in some cases mercury not only fails altogether to cure, but aggravates the disease, and therefore is not a specific; and what have been considered as some of the worst secondary cases of syphilis result from mercury itself—from the very means used to cure the disease.

Dr. Thompson of Edinburgh zealously advocates the non-mercurial treatment, and supports his views by 400 cases treated without mercury. Mr. Green thinks Mr. Abernethy's test between true syphilis and pseudo-syphilis (namely, that the former requires mercury for its cure) erroneous. Mr. Rose, surgeon to the Guards, says he succeeded in curing all ulcers on the parts of generation, with all the constitutional symptoms to which they give rise, without mercury. He treated 120 cases without any unfavourable result.

Mr. Guthrie treated nearly 100 cases of primary sores without mercury; and thinks it an established fact, that every kind of ulcer on the genitals is curable without mercury; he, however, thinks that, in some cases, a gentle course will expedite the cure, but does not consider it a specific for the venereal.

Dr. Thompson remarks that, in his cases treated without mercury, there were not any of those deep and foul ulcers of the skin, of the throat, of the mouth and nose, or the painful affections of the bones, which are stated by every writer on syphilis as the general products of that disease. In 154 cases, treated by him without mercury, iritis followed in 1. In 417 cases, similarly treated by Dr. Hennen, iritis occurred only in 2. Dr. Hennen treated 105 cases of primary sores without mercury; secondary symptoms followed in 11

cases : all were cured without mercury, except one obstinate and anomalous case.

In the report from the Army Medical Department, from December, 1816, to December, 1818, there appear to have been treated, for primary venereal ulcerations on the penis (including not only the more simple cases, but also a regular proportion of those with the most marked characters of syphilitic chancre, as described by Hunter), 1940 cases; of these 1940 cases, 96 had secondary symptoms of different sorts; of these 96 cases of secondary affections, mercury was had recourse to in 12, for various reasons, as stated in the report. In the 1940 cases of primary symptoms, mercury was used in 65, for reasons also assigned. If we deduct the 65 and 12 cases in which mercury was used, from 1940, 1863 cases remain *completely* cured *without* mercury. The average time required for the cure of primary symptoms without mercury, when bubo did not exist, has been 21 days; with bubo, 45. Average period for cure of secondary symptoms, without mercury, has been from 28 to 45 days. In the same period, 2827 cases of primary symptoms were treated with mercury: secondary symptoms occurred in 51 of them. The average period for the cure of primary symptoms without bubo was 33 days—with bubo, 50 days; and for the cure of secondary symptoms, 45 days.

Mr. Green treated 100 cases without a particle of mercury, either internally or externally. The primary sores were treated with sedative and astringent lotions, or simple ointment; all these sores possessed some of the characters of the true Hunterian chancre: from 14 to 30 days was the time in which they were generally healed. One case of chancre resisted all applications for four months, till the person was removed to the sea-side, where it was healed in three weeks. Of these 100 cases, buboes supervened in 16: of which 6 only suppurated. Constitutional affections, of one kind or another, followed in 9 cases; these were, cutaneous eruptions—papular in 3, pustular in 2, vesicular in 1, vesicular and scaly in 2. These eruptions, at their commencement, were generally accompanied by pains in the limbs, and more or less fever. One of the cases of pustules closely resembled small pox; he has generally seen this particular form occur in persons of strong constitution. The vesicular and scaly eruptions occurred in delicate persons, and were very obstinate; sore throat occurred in 4 cases; in 3, conjoined with eruptions. Periostritis occurred in 2 cases, which yielded to counter-irritation. There was not one case of iritis.

Mr. Green thinks that the use of mercury in primary symptoms should be given up altogether; but that in some cases of *secondary* it may be of use. From a comparison of facts, primary sores are sooner cured where mercury is not given. As far as the Army Medical Reports go, secondary symptoms followed more frequently where mercury had *not* been given, but they were not so severe as those which occurred after mercury had been given. The cases in which he thinks mercury of use are those in which the symptoms get into an indolent condition, and become a chronic disease. The superficial ulceration of the throat, which he considers truly syphilitic, frequently becomes changed by mercury into deep excavated ulcers of the tonsils.

There can be no doubt, gentlemen, that mercury may be given to a person previously healthy, in such a manner as gradually to undermine the constitution and destroy health; of this the workmen employed in quicksilver mines afford a melancholy example; and it is a striking and remarkable fact, that the *mercurial cachexy* thus produced resembles in many respects the *venereal*. Emaciation, night sweats, pains in the bones, nodes and osseous caries, cutaneous eruptions and ulcers, redness and ulceration of the throat, loss of appe-

tite and debility are common to both. It is quite certain that these cachexies, when pure and unmixed, may, by an experienced examiner, be distinguished from each other with facility; but the case is widely different when they co-exist in the same constitution, each modifying and deteriorating the other. These two cachexies combined in the same individual occasion, according to the predominance of either, and the simultaneous and sinister presence of a weak, scrofulous, or scorbutic habit, those endless varieties of deplorable suffering which we are so often called on to witness in cases injudiciously, ignorantly, or negligently treated. I must refer you to authors for a more detailed and accurate account of the ill effects of mercury. Dr. Hennen has written with great clearness on this subject: he concludes by remarking, "the most troublesome of all its effects is the phagedænic ulceration which it often induces in chancres and open buboes; and the disposition to fresh ulcerations of a spreading and intractable character, which it gives rise to in parts where the skin had not been previously broken; in the throat most severe ulcerations are excited by it; erosions of the gums and palate are produced; and the papulæ and other eruptions of the skin, which so often appear as a secondary form of the disease, are frequently exasperated into open ulcerations. I have not seen a single case of ulceration succeeding to a cutaneous eruption in the military hospital since the non-mercurial treatment has been adopted, except where mercury had been long and irregularly tried."

The example set by British surgeons was soon extensively followed on the Continent, and many reports of the success of the non-mercurial treatment were published in France; several of these have appeared in the English periodicals; and some important documents of this nature have been cited by Mr. Carmichael, in a paper published in the 12th volume of the *Dublin Medical Journal*. As you can all refer without difficulty to French publications, I shall not detain you by quoting their contents, but shall at once proceed to submit to your consideration a translation of certain German writings, which contain important data connected with our subject, but which are not easily procurable, and cannot be understood without a very accurate knowledge of the German language and German pharmacy.

To the first document I attach great value, having myself witnessed the progress of the treatment in the splendid and admirably-arranged hospital at Hamburgh, under the care of that able surgeon Dr. Fricke, whose assistant, Dr. Günther, took all the cases, and afterwards tabulated the results. Of course I cannot do more than present to you the general plan of treatment adopted, and the general conclusions arrived at. In the work itself numerous examples are given of each variety of primary and secondary affection, and the details of the treatment are accurate and full. As the non-mercurial plan excited much interest among German physicians, its details were watched with the most scrupulous accuracy, both by the medical men of Hamburgh, and by many who came from different parts of Germany to witness the progress of so important an experiment. That the details and results have been given by Drs. Fricke and Günther with the greatest fidelity I know, both from what I myself observed, and from what I heard from Dr. Oppenheim and others.

I shall now proceed to read for you copious extracts from Dr. Fricke's work, and afterwards communicate information I have recently obtained from this eminent surgeon on the subject. The first extract is on the treatment of syphilis, during the years 1824, 1825, 1826, 1827, reported by Dr. Günther, Assistant Surgeon.

"The treatment of syphilis in our hospital may be divided into two periods. During the first, mercury was employed as the chief remedy ; during the second, the disease was treated after the non-mercurial plan. The former comprises, with males, a space of eighteen months and-a-half (from January, 1824, to July, 1825) ; with females, of twenty-two months (from January, 1824, to October, 1825). The latter includes, with males, a period of two years and five-and-a-half months ; with females, of two years and somewhat more than two months.

FIRST PERIOD.

Treatment of Syphilis with Mercury.

"I shall now communicate the principal facts and results of this mode of treatment, as the profession can have no particular interest in the more minute details, which can be useful only in the way of comparison. The forms of disease observed during the first period may be seen in the annexed tables. On looking over them, a considerable difference will be seen between them and those of the second period : syphilis having exhibited itself in a much more malignant form in the first period. Nocturnal pains, caries of the nasal, palatine, and other bones, obstinate and extensive cutaneous eruptions, general lues, syphilitic cachexy, &c., were among the ordinary phenomena ; while in the second period they were of rare occurrence, and observed only in those who had been subjected to long and injurious courses of mercury.

"If we compare the forms of disease occurring in the same individual at different times, before and during the first period, we shall not unfrequently perceive a certain gradation from a favourable to an unfavourable constitution of disease ; that which commenced with superficial ulcers of the genital organs subsequently appeared as bubo, then as ulceration of the throat, next as an extensive cutaneous eruption, which often gave rise to ulcerations, then harassed the patient with nocturnal pains, nodes, caries of the bones of the face and loss of the hair, until it terminated in syphilitic cachexy, general and incurable lues, consumption, emaciation, and dropsy.

"The mode of treatment employed during this first period was various, and regulated by the peculiarities of each individual case. No undue predilection was shown for any particular preparation of mercury. The soluble mercury of Hahnemann was chiefly employed, in doses of a grain twice a-day ; in a great many cases calomel was used in the same proportions. Corrosive sublimate was given in solution (gr. iij. ad 3vj.) generally in combination with a little opium or with the decoction of columbo ; a table-spoonful three times a-day. In obstinate cases calomel and corrosive sublimate were administered alternately in the form and doses already mentioned ; and this mode of administration was looked upon as very powerful and efficient. On one occasion calomel was given in large doses (ten grains) ; and 33 cases were treated with mercurial frictions, after the manner recommended by Rust. The latter, which were employed in the cases of 13 females (in some individuals twice), were had recourse to only in obstinate and extensive forms of the disease. When syphilis was attended with distinct inflammatory symptoms, the antiphlogistic treatment was put into operation before mercury was administered.

"With respect to the duration of treatment, a remarkable difference will be perceived on inspecting the tables of both periods. I have taken an average of the number of days spent in hospital, as well by patients labouring under the peculiar forms of syphilis, as by the general class, and added it to the

tables. The relative proportion of this cannot be always easily stated, for no general law can be deduced from a few cases ; but, on comparison, a difference in favour of the non-mercurial plan of treatment is readily perceived.

“With regard to the certainty of cure, so far as the mercurial treatment is concerned, we must say, with many of our unprejudiced colleagues, that we are convinced by bitter experience that syphilis very often returned in the secondary form, after the most cautious use of mercury, the most careful selection of the preparation, the strictest attention to diet, and a proper observation of precautionary measures. Of 573 patients treated during the first period, 165 (*i. e.* nearly one-third) were attacked with secondary symptoms. All these were treated with mercury for the primary symptoms, although, it is to be observed, the smallest portion of them had been under our care. Of those patients treated during the second period, who were attacked with secondary syphilis, by far the greater portion had at an earlier period and before admission, or while in hospital, used mercury for the cure of the disease. Many patients in whom the disease was supposed to have been eradicated came back (particularly after the use of mercurial frictions), with caries of the bones of the face ; some of these were afterwards cured without mercury, others are still under treatment.

“On examining the bodies of those who died while under treatment, particularly during the use of mercurial frictions, and while the mouth was affected, we did not find the parotid, sublingual, or pancreatic glands enlarged ; they were, however, harder than usual, and, when slit open, had in a remarkable degree the unpleasant odour attendant on salivation. In one case the submaxillary glands were enlarged, but, with the exception of some slight induration, otherwise unchanged. In the case of a young woman who had frequently used mercury, and who died twenty-two days after a protracted course of frictions—on boiling some portions of the thigh-bone (the head, neck, and trochanter) and of the tibia for an hour in water, we found somewhat more than half a drachm of mercury. In two or three similar cases, where so much mercury had not been employed, we could not detect any.

SECOND PERIOD.

Treatment of Syphilis without Mercury.

“When this mode of treatment was introduced into our hospital by Dr. Fricke, he at first submitted only a small number of patients to it, and selected chiefly those whose future prospects depended on their being cured in the speediest way. Having afterwards discovered, contrary to his expectation, that the disease was cured more rapidly this way, and relapses much fewer and slighter, it was extended to all cases, with such modification as experience suggested.

“At this present time (February, 1828), after a trial of two years and-a-half, and the successful treatment of more than a thousand patients, the results of this treatment have proved so favourable, that there appears no reason for lightly abandoning it, or returning to the former plan of treatment. As already stated, patients are cured in a much shorter time than before, and leave the hospital with much healthier looks. All the unpleasant phenomena attendant on salivation no longer harrass them. Formerly, notwithstanding the greatest attention and cleanliness, it was impossible to remove the foul smell from the venereal wards, or to keep the rooms or beds clean ; the air was tainted with the offensive odour of salivation and syphilitic caries ; and

filth was the order of the day in all the wards occupied by patients under full salivation. At present there is not a trace of this air in a ward containing constantly 60, 70, and sometimes 100 patients; and the venereal department of the hospital rivals the other divisions in purity of air and cleanliness. Syphilis, too, seems to become gradually more simple—at least it never appears in the same malignant form as before, where little or no mercury has been used. As every medical man is allowed to visit the hospital, anyone may convince himself of the truth of these statements.

“From the strict surveillance over prostitutes observed by the police, the attention and experience of the surgeons appointed by the government to inspect them, and from the circumstance that such females come to our hospital for the relief of all diseases under which they may happen to labour, we are enabled to keep a strict control over their diseases. Those who live in the town, constituting three-fourths of them, under the jurisdiction of Hamburg, and those who live in the suburb named Hamburgerberg, are examined twice a-week by two government surgeons. Every female is obliged, each time, to bring a book, in which her state of health is entered. Those who are found diseased are immediately sent to hospital. Unfortunately, we cannot exercise the same control over males, and with the same accuracy and precision. A large portion of the males under our care leave Hamburg, and many of them, when they get fresh infection or secondary symptoms, apply to other physicians of this city, and are generally treated with mercury. Hence, of course, in such cases the accuracy of the result is disturbed and rendered uncertain. Many who are cured and remain well do not keep the promise which is exacted from all who are dismissed cured, namely, to let us see them again. Some, in fine, lose patience, and leave the hospital before their cure is entirely completed. This, however, has not occurred for the last half year. All these circumstances combined render it extremely difficult to ascertain the truth in each individual case. There remains, however, a number of male patients who are kept constantly under observation.

GENERAL TREATMENT.

“Four conditions we endeavour to fulfil, viz., cleanliness, rest, a strict diet, and (in a therapeutic point of view) an antiphlogistic plan of treatment.

Cleanliness is of the greatest importance towards a speedy and successful termination to the cure; several patients were cured by the use of warm baths and ablutions. On the other hand, a neglect of this precaution has been the cause either of the origin or of the deterioration of many forms of the disease. On entering the hospital, all syphilitic patients, unless perfectly clean, are put into a warm bath. With women this is seldom requisite, with men almost always. The diseased parts, and those in the vicinity, are frequently washed with warm water. This operation requires to be looked after more carefully in men than in women, the latter being naturally more cleanly. Again, places on which ulcers, condylomata, and exanthemata are seated, the glans and prepuce in gonorrhœa, and all carious bones, are cleansed of pus, mucus, and dirt, by frequently washing, sprinkling, rinsing, and syringing with warm water. Pus is never allowed to collect on ulcers, or on the prepuce or glans in gonorrhœa. A most important rule is, to prevent excoriations, chancres, and condylomata from coming in contact with the healthy mucous surface or skin; as, for instance, in the angles between the carunculæ myrtiformes and nymphæ, between the labia, between the testicle and the

upper part of the thigh, &c., as in course of time not only the sound parts become excoriated or ulcerated, but also the disease protracted and often very much exasperated. We also take care to prevent excoriations, exanthemata, and condylomata from forming in the angles and folds of the genital organs from the matter of gonorrhœa or ulcers. To accomplish this end we put pieces of linen or charpie, wet with spring water, saturnine lotion, or black wash, into each fold or angle, changing them three or four times a-day, and sometimes oftener, according to circumstances. This attention to cleanliness is also of the greatest importance after the cure is finished, because the cicatrices are apt to become raw and turn into excoriations or ulcers when neglected. This has frequently occurred in patients discharged cured, who, on being admitted a second time, have been again cured by strict attention to cleanliness.

"*Rest* is necessary, particularly during the first period, and where the disease exhibits an inflammatory character. Hence, all patients, on admission, are confined to bed. In women this regulation was enforced throughout: on the other hand, males were generally permitted, and with advantage, to walk about during the latter period, where a chancre or opened bubo had healed up to a certain point and then become stationary. The reason of this difference between the treatment of males and females was particularly this, because in the latter the diseased parts are not so easily protected from contact with the sound skin or mucous membrane, from friction, or from becoming wet with pus, mucus, &c. Pregnant women were permitted to walk about a little.

"With regard to *diet*, each patient received at first every day four ounces of bread, three pints of gruel, and six spoonfuls of vegetables, at noon; the latter varying according to the season of the year. They were not allowed to drink beer, brandy, or water; their common drink being thin gruel. As soon as the characteristic appearance of the ulcers began to vanish, or an improvement took place, the diet was gradually made more nutritious, according to the state of the constitution and the wants of the patient; and when matters went on favourably in this way, meat was allowed. We have departed from this rule in the case of very weak individuals, and persons who had been debilitated by mercurial courses, allowing these a nutritious diet from the commencement. In the case of females, who seldom remained in hospital longer than three or four weeks (some not more than fourteen days), and who require less food than males, the first kind of diet was generally continued until the termination of the cure; in males it was usually changed a fortnight or three weeks after the character of the disease began to improve. The appearance of those who were dismissed after a long stay in hospital was that of men in perfect health, and (where the strict diet had not been continued too long) not at all deficient in bodily strength.

"The *therapeutic* measures employed were by no means complicated, and have been latterly rendered more simple. At first every patient who could bear it, whether male or female, was bled to eight, ten, or twelve ounces. Experience, however, has taught us that in most cases general bleeding may be dispensed with, and that the end in view may be accomplished in as short a time, and with equal success, by observing the rules already laid down. Hence venesection is at present confined to cases of plethoric habit or high local inflammation, and consequently not very often employed. In some peculiar forms of disease leeches were used. In cases of secondary syphilis, particularly where the disease came on after the non-mercurial treatment,

venesection was occasionally employed. The treatment was generally commenced with the following medicine :—

R. Sulphatis Magnesiae, ʒiiss.
Aquæ Fœniculi, fʒviiij. Misce.

“Of this a table-spoonful was administered three times a-day, or oftener, so as at first to produce several stools, and afterwards one during the course of the day. Occasionally a collection of bile in the primæ viæ, which sometimes occurred under the continued use of this mixture, required the administration of an emetic. The mixture was given to pregnant women merely in such doses as to keep the bowels regular. In secondary syphilis the decoction of woods and nitric acid was also employed. After a long and copious use of the laxative mixture, aphthous excoriations of a circular shape, and from three to four lines in diameter, were sometimes observed on the inside of the lower lip and the mucous membrane of the cheeks. These had a flocculent appearance, were painful, and surrounded with slightly-swollen edges. Frequently they were combined with small tallow-like sloughs of the mucous membrane at the angles of the mouth, frequently with raw surfaces. Persons of a scorbutic or scrofulous diathesis were very subject to them. They were often very obstinate, and required the use of acid or astringent gargles, touching with solutions of caustic, and the omission of the laxative mixture.

“In a few cases we have seen a more than usually copious flow of saliva after the use of nitric acid, frequently a slight increase in the cutaneous transpiration, or an increased secretion of saliva, after decoction of the woods had been employed for some time. Nitric acid was exhibited in the following form :—

R. Acidi Nitrici, fʒss.
Syrupi simplicis, fʒj.
Decocti Avenæ, fʒxiij. Misce.

Of this mixture a table-spoonful was given every second hour, and sometimes every hour. From eight to twelve ounces of the decoction of the woods were administered every day. Saponaceous baths were ordered for the sake of cleanliness, as also in some forms of eruption ; in others, baths containing muriate of soda, or mineral acids, or corrosive sublimate, or (in cases of pains in the bones) caustic potash. Many kinds of lotions were also used for moistening the charpie and linen used in dressing the sores.

“CHANCRES ON THE GENITAL ORGANS.

“Of chancres (differing from excoriations by an excavated base and corroded edges) we have observed seven different species, distinguished from each other either by their appearance, their degree of intensity and extent, or by the mode of treatment they require.

“1st Species.—Chancres with a clean and, in general, copper-coloured base; the base deeper than the edges, the edges sharply cut, but not raised above the epidermis ; diameter from one to four or six lines. They constitute the transition from the third species of excoriations.

“2d Species.—Chancres with an ash-coloured and, usually, soft base ; the base deeper than the edges, the edges cut, but not raised above the epidermis; the diameter from one line to one or two inches.

“3d Species.—Chancres with an ash-coloured and, in general, hard base ;

the base deeper than the edges, the edges sharply cut, indented, raised above the epidermis, everted, often of a dark red colour, and inflamed; diameter from one to four or five lines. (The Hunterian chancre.)

4th Species.—Chancres with a depressed base covered with an adhesive, viscid, grayish-green matter. The base is irregular, in many places deeper, in others shallower. The edges cut, raised above the epidermis, everted, often intermixed with livid black (gangrenous) spots; the circumference inflamed; diameter from three or four lines to an inch or two. They are always in connexion with great destruction of the neighbouring parts. (Carmichael's phagedænic chancre.)

5th Species.—The base scarcely deeper than the epidermis, but much deeper than the edge; the edge raised above the base and the epidermis, not sharply cut, rounded off towards the base, which is surrounded like a rampart. In general the base was not ash-coloured, but for the most part of a pale reddish colour, without any appearance of commencing granulations. These chancres were usually attended with a copious discharge, and very apt to produce excoriations of the first species on the parts in their immediate vicinity. With the edge they generally measured from four to six lines in diameter. They were frequently covered with a scab. (Transition to the semiglobular condyloma.)

6th Species.—The base raised above the epidermis, of a spongy and, in general, bluish red appearance; no distinctly formed edges; the surrounding skin not inflamed.

7th Species.—Hemorrhoidal chancres. Raw surfaces formed on hard hemorrhoidal tumours, with a whitish but not ash-coloured base. The tumours themselves were flat, compressed, and full of fissures. The tumours often exhibited excavations with an ash-coloured base and corroded edges. These chancres were attended with a copious discharge, and were extremely painful. (Transition to the quadrangular condyloma.)

"We have frequently observed a transition from chancres of the first species to the second, third, and fourth, produced by neglect, improper diet, constant bodily labour, and want of attention to cleanliness. We very rarely observed ulcers of the fourth species among females, except in a few cases of maid-servants who had venereal ulcers for a long time without having any thing done for them. In men we generally observed them behind the glans, in the angle between it and the prepuce. The transition from the first to the other species was sometimes very slow, sometimes exceedingly rapid. Artificial ulcers, formed three times with corrosive sublimate on females, and twice with lapis infernalis on males, resembled chancres of the third species.

"With respect to the origin of chancres, those of the four first species were formed in a threefold manner. In the first place, the well-known vesicle, filled with clear pale lymph, formed on the sound or inflamed skin. The circumference became inflamed, the lymph changed into purulent matter, the vesicle burst, and gave rise to a chancre of the first species, which, after the lapse of twenty-four or forty-eight hours, became converted into a chancre of the second species, and, under the operation of the circumstances already mentioned, into one of the third or fourth species. We observed this mode of origin very often in men, particularly in chancres of the glans, but very seldom in women. In the second place, from excoriations, particularly of the third kind, chancres of the first species formed; these either remained in this state, or changed into one of the other three species. The change was generally very slow. Sometimes, however, a slight excoriation of the third kind, from

neglect on the part of the patient before admission into hospital, became converted in the space of three or four days into the phagedænic ulcer of Mr. Carmichael. This mode of origin we have frequently observed in both sexes, particularly in chancres behind the glans. In the third place, chancres formed in the mucous follicles of the inside of the nymphæ, the openings of which are very distinct, particularly in young females. These small follicles inflamed, suppurated, and, when the openings closed, and the pus went deeper, formed abscesses. When the matter was discharged externally (a much more frequent occurrence), either by the pus escaping through the natural opening, or by the breaking of the abscess, chancres were formed, most commonly of the second species. In this manner fistulous and chancreous ulcers formed, which, on account of their minute size and concealed situation, repeatedly escaped an unpractised eye. We frequently found ulcers on one and the same spot in prostitutes, and this spot proved to be the seat of a fistulous follicle: when this was destroyed with caustic, the tendency to have chancres on one and the same spot ceased. These fistulous ulcers looked like a small, thin, dark-red follicle, darker than the surrounding healthy membrane, with a small opening in the centre, permitting the escape of a small quantity of pus on pressure, and with their edges inverted. This origin of chancres was extremely frequent among females; on the other hand, we have seen only a few examples of it among males, on the inner lamella of the prepuce. These mucous follicles often closed, and seemed to be healed up, but always broke out again in a short time.

“Chancres of the fifth species, in cases where we had an opportunity of observing their mode of origin, formed from semiglobular condylomata, which having first secreted a fluid, and afterwards been exposed to friction, gave rise to excoriations.

“On the origin of the sixth species we had no opportunity of making any observations. Hemorrhoidal chancres formed where hemorrhoidal tumours were exposed to friction, and to the contact of leucorrhœal or gonorrhœal matter.

“Chancres of the first four species in women were most commonly situated on the fossa navicularis, the remains of the hymen, the internal walls of the nymphæ, in the angles between the nymphæ and carunculæ myrtiformes, and on the anterior edge of the labia; less frequently in the urethra, and around it, in the angles between the labia and nymphæ, on the outer surface of the nymphæ, and on the frænum itself; more rarely still in the space between the urethra and vagina, or between the urethra and the clitoris, on the outer surface of the labia, or in the vagina. In the latter case, we always observed a smaller or greater protrusion of the walls of the vagina, on which a chancre of small size was discovered. Chancres on the anus (which were observed only in a few cases) were the result of unnatural coition.

“In men chancres were situated on the glans, behind the corona glandis on the frænum, on the inner surface of the prepuce, in the urethra, and at the junction of the external with the internal lamella of the prepuce; less frequently on the outer lamella of the prepuce, on the dorsum or under surface of the penis, and on the scrotum; still more rarely on the perinæum, anus, pubis, and inside of the thigh; the latter from contact with the organs of generation.

“Chancres of the fifth species were situated in women on the labia, the outer surface of the nymphæ, the inner and upper part of the thigh, and frequently on the perinæum; in men on the scrotum and penis, particularly the under surface, the perinæum, and the upper and inner part of the thigh. All ulcers occurring on the scrotum exhibit this form.

"Spongy chancres (sixth species) were seated on the inner lamella of the prepuce, and sometimes in the angle between the prepuce and glans.

"Hemorrhoidal chancres, of course, were naturally seated on the circumference of the anus.

"With respect to the prognosis of chancres, we were always able to make it invariably good. None of the different species extended to any remarkable degree either in depth or circumference, when once submitted to treatment. Even phagedænic chancres, which had in many cases committed great ravages before the patient's admission, healed in such a manner that a considerable portion of the devastation was repaired by healthy granulations. In one case only, a large portion of the glans, which had been lost before admission, was never reproduced. All the ulcers healed, and all the cicatrices were firm and good. With respect to each individual species, the following was our experience.

"1. On the whole, chancres of the first species healed in the shortest space of time. Those of the second and third healed more slowly; those of the fourth most slowly. The spongy chancre (6th species) occupied an intermediate rank; the condylomatous (5th species) and the hemorrhoidal chancre (7th species) were often extremely obstinate.

"2. Hunterian chancres, so small as to measure only a line in diameter, were (proportionally to their small size) extremely slow in healing.

"3. Chancres around the orifice of the prepuce, on the scrotum and perinæum, were generally slow in healing; those behind the corona glandis, on the glans and on the labia, required for the most part but a short time for their cure. Ulcers on the frænum in males were very slow in cicatrizing.

"4. Chancres produced and kept up by a mucous follicle usually did not heal until the follicle was destroyed.

"5. Chancres healed in the best and speediest manner with patients who had used nothing for the disease before admission; they were most obstinate in patients of a scorbutic, scrofulous, or phthisical habit.

"6. Chancres with a brownish base were generally tedious.

"7. Some chancres proved remarkably obstinate, without any sufficient cause that we could discover.

8. "Chancres made by art required the same time for their cure as Hunterian chancres of similar size."

As to treatment, the following details exhibit the course pursued:—

"In all cases where chancres were seated in the folds of the organs of generation, as, for instance, between the labia and nymphæ, the latter and the caruncule myrtiformes, &c. the lips were separated, the angles cleaned, frequently washed, and covered with charpie dipt in water or saturnine lotion, and the dressing renewed two or three times a day. If the ulcer suppurated freely, the dressing was used oftener. If there was no advance in the healing process, the lotions were changed, and lime water, aqua phagedænica nigra, a solution of four grains of sulphate of zinc in eight ounces of water, decoction of elm bark, or a scruple of the oxide of zinc in eight ounces of saturnine lotion, were then employed: or recourse was had to ointments, which were used chiefly in cases where the chancres had become very small, and suppurated sparingly. Zinc ointment, or the following, was in general preferred:—

"R Unguenti Zinci, ℥ss.
Balsami Peruviani, ʒj.
Potassæ fusæ, ʒj.
Misce; et signetur—the black ointment.

"This was found extremely serviceable in cases where the ulcer was healed up to a certain point, but would not cicatrize. The ointment was allowed to remain unchanged for two or three days, until it was thrown off by pus, or with a scab. If the new skin exhibited any roughness or chafing, so as to threaten to break and become raw again, we were in the habit of smearing it with zinc ointment for several days successively.

"In cases of ulcers with a copper-coloured base, marsh-mallow ointment did more service than anything else. Often we were obliged to try many ointments before we could hit on a good one.

"When the healing process was advancing, pencilling the edges of the sore with a weak solution of caustic potash greatly promoted diminution of the chancre.

"Condylomatous (5th species) were treated, in the commencement, partly by frequent ablution with soap and warm water, partly by applying pledgets dipped in saturnine lotion. After this they became drier, the central portion of the base became elevated, and the edges began to approximate and unite. The semiglobular elevations also diminished, but they were rarely removed by these means alone. They were then pencilled over with Plenk's liniment, according to the following recipe:—

R Corrosivi Sublimati,
Camphoræ, ʒā, gr. xij.
Aluminis.
Acetatis Plumbi, ʒā, ʒj, misce terendo, et adde
Acidi Acetici, fʒij, ut fiat solutio ; dein adde
Ætheris Sulphurici, fʒj.
Signetur "Plenk's Liniment."

"When the elevations had been pencilled for a few days with the white sediment of this liniment, they began to exfoliate, shrink, and diminish in size. If they resisted this application, they were touched for several days in succession with fuming nitric acid, or cut off with the scissors. This kind of ulcer, however, was very apt to return again where attention to cleanliness was omitted.

"The spongy ulcer (6th species) was covered with charpie dipt in the following lotion:—

R Aluminis,
Cupri Sulphatis, ʒā, ʒss.
Aquæ, fʒxij. : Misce,
Signetur "The green lotion."

"If this happened to be too strong, the decoction of elm bark was substituted. The ulcers were treated in this way until the base became reduced to the level of the skin, a small palish blue film surrounded it, and the raw surface in this way diminished in size.

"Hemorrhoidal chancres were also treated with saturnine lotion ; in many instances hard hemorrhoidal tumours were cut off with a scissors.

"On many occasions we have attempted to destroy with caustic the small vesicles from which chancres often arise, in order to prevent the formation of chancres ; but a much larger sore was produced in this way than if they had been allowed to run their course as usual. Sometimes, however, we succeeded in preventing them from passing into chancres by smearing them with zinc ointment as soon as ever they were observed on the glans. Under this treatment, they sometimes dried up without forming sores.

"Cataplasms were very often employed ; under the following circumstances they were very efficacious :—1st. Where the edges of the sore were very hard, callous, and everted. 2nd. Chancres would frequently heal up to the size of a millet-seed, and then become stationary, or even get worse, from the formation of excavations under the edges. In such cases we applied charpie dipped in decoction of elm bark over the ulcer, and over the latter a poultice. These measures in general answered our expectations. 3rd. When the base was covered with a firm, dense, ash-coloured layer. 4th. Fistulous ulcers of the mucous follicles were often healed up completely with cataplasms. 5th. We also found them extremely serviceable in softening hard, callous, and chapped cicatrices. Finally, when cicatrices broke out afresh a few days after healing, we applied cataplasms either immediately over the raw surface itself, or previously touched with zinc ointment, black salve, or the lotions above mentioned.

"We observed that the first four species of chancres were accustomed in healing to pass through the four stages already mentioned, in succession. Often a phagedænic chancre, after three or four, and sometimes after eight or ten days, began to change its character, the edges became softer, flatter, less elevated, and less everted, and the surrounding inflammation assumed a milder aspect. The ash-coloured layer which formed the base became thinner, the gangrenous parts were detached, the inequalities of the base disappeared, and new red and healthy granulations sprang up among the ash-coloured spots which formed the base. The edge then sank on one side (rarely at different spots simultaneously), the base became elevated in the same direction, suppuration went on healthily, and small but not well-defined patches of epidermis became visible on the surface of the ulcer. The remaining edges sank down in a similar way, the base became elevated, the small cicatrized points approximated, and the ulcer completely healed.

"A very large, deep phagedænic ulcer, with or without phymosis, required from four to six or eight weeks, and sometimes more, to heal.

"ON THE PREDISPOSITION TO CHANCER.

"We have often been able to verify the observation, that many men, and young women especially, are extremely liable to venereal infection, and in particular to the formation of chancres. The following are the results of our experience on this point :—

"1. All young women not attentive to due cleanliness were very easily infected. We have seen this observation confirmed in numberless instances. From some brothels young women, labouring under syphilis and particularly under chancre, were sent to us much more frequently than from others ; from the former the greater number of patients admitted were affected with itch, and much less cleanliness observed than in the others.

"2. Young women with very narrow vaginae were very readily attacked with excoriations of the nymphæ, the carunculæ myrtiformes, and fossa navicularis, which subsequently became chancres. Whenever we meet with this state, we endeavour to dilate the vagina with bougies gradually and cautiously employed.

"3. The shorter the period elapsed since defloration, the more readily did chancres and excoriations form ; since prostitutes who had been a long time on the town were much seldomer infected.

"4. Young women of scrofulous habit, or very delicate skin, were very apt to get chancres.

"5. But, above all, those who had the mucous follicles of the vagina highly developed were peculiarly liable to the formation of chancres or abscesses. The mouths of these follicles, particularly in young women of full habit, may be seen very distinctly on the inner surface of the nymphæ. They are sometimes so large as to admit the end of a probe with ease. When inflamed, the parts around are of a darker colour, and the mouth of the follicles somewhat elevated. As we have already stated, they become very readily converted into abscesses, but more frequently into chancres. Sometimes, on dismissing a female patient, we have been able to determine beforehand the spot on which a chancre would be found on the next infection, viz., the situation of a mucous follicle with a large opening. Hence we have often thought it necessary to make an incision through the follicle, and then burn it out completely with caustic potash; after which we never found a chancre to form on the same spot."

Condylomata, which are so rarely seen in this country (at least, in proportion to the other forms of primary syphilis), constitute one of the most common forms of the disease in Germany, and are looked upon as extremely obstinate, slow in healing, and very apt to return. Six different species have been observed by Dr. Fricke.

"1. Conical condylomata.—These resemble grains of peeled barley, of a whitish colour, aggregated, and more commonly observed in females. Their situation was on the inside of the nymphæ, between the nymphæ and labia in the vagina, behind the corona glandis, and on the inside of the prepuce. They required excision and cauterization, and were very apt to return: they sometimes appeared spontaneously during the period of the catamenia.

"2. Scollop-shaped condylomata.—These sometimes resembled a cockscomb in shape, sometimes they were more like a strawberry or a cauliflower, but the original form was that of a scollop or cockscomb. They grew to the height of half or three-quarters of an inch in some instances. When small, they were generally of a white colour, and covered with a whitish exudation. They were of a delicate texture, hollow, and when tied, appeared full of bright red blood. When cauterized superficially, they increased in size, and became indurated on the surface; they were in general aggregated, and occurred more frequently in men than in women. Their situation was for the most part the same as that of the foregoing. Sometimes they projected from the urethra, and were occasionally found in the vagina. They required excision and full cauterization, but often disappeared of themselves, or under very simple treatment. They were treated with caustic potash, Plenck's liniment, calomel, and powdered savine, a solution of corrosive sublimate (gr. i. ad 3 j.), and excision.

"3. Polypoid condylomata.—These were fleshy, roundish, soft, and somewhat redder than the mucous membrane of the vagina. The base was as broad as the summit; they were seldom observed, occurred only in females, and on the perinæum, between the labia and nymphæ, and on the clitoris. When removed by excision, and cauterized, they seldom returned.

"4. Urethral condylomata.—These were observed in females at the opening of the urethra, and differed but little from the polypoid condylomata. They were sometimes cured by excision and cauterization; sometimes they were so obstinate that it was found useless to apply any remedies. Several prostitutes were known to have them for a considerable time, and follow their avocation without injury to others.

"5. Semiglobular condylomata.—These were seated on the skin, with a

broad surface, and varied from the size of a split pea to that of half a musket ball. They were pale or whitish, covered with moisture, somewhat excoriated, and became converted by neglect into condylomatous chancres. They were generally situated in the vicinity of, but not on, the mucous membrane of the organs of generation. They were extremely infectious, and readily gave rise to similar condylomata or chancres on the parts with which they lay in contact. Their treatment was very simple; cleanliness and isolation were the only requisites. When reduced to a certain size by the use of simple astringent washes, they were completely removed by caustic applications.

“6. Quadrangular condylomata.—These were seldom observed, were more common among males than females, and were always situated round the anus. Their form was square or trapezoid, compressed on the surface, lying close together, and separated by fissures, from which a considerable quantity of moisture exuded. They were somewhat paler than the epidermis, and in some cases seemed to have owed their origin to old indurated hemorrhoids. They required more active treatment than the foregoing, and were slower in disappearing.

“Condylomata of all kinds, occurring in pregnant women, were treated with caution, and excision or cauterization was seldom employed.

“VENEREAL SORE THROAT.

“(Chancres in the throat—Chanker im halse).

“Venereal sore throat appeared in the form of ulcers of the tonsils, the arches of the palate, the uvula, the soft palate, or the posterior wall of the pharynx.

“With respect to their origin and course, ulcers of the tonsils exhibited the three following forms.

“In the first form the tonsils swelled, and acquired a deeper red colour, produced slight pain in swallowing, either at the commencement or subsequently, and gave a kind of nasal tone to the speech. The tonsils then increased in circumference and depth, and exhibited on the surface white purulent vesicles, which burst, became gradually deeper, and formed ulcers, which at first had nothing characteristic, but by neglect became greatly enlarged, and assumed an ash-coloured appearance; when the tonsils happened to be greatly enlarged and swollen, the base of the ulcer appeared hollow; the edges were sharp, corroded, and everted. The base was often of a greenish colour, and the circumference inflamed. In this way these ulcers would pass through the four first stages of ulcers on the genitals, with this exception, that they never became truly phagedænic. When the ulcers went on unchecked, they became larger, and involved the neighbouring parts (this, however, rarely occurred), or new ulcers formed in the vicinity, and coalesced with the latter. The healing process went on as in the case of ulcers of the genitals, with this exception, that it was often difficult to determine with precision whether the tonsillar ulcer was really healed or not, because the cicatrices looked deep and angular at first, or even for a considerable time, and were often covered with whitish streaks, which might be easily mistaken for ash-coloured ulcers.

“Ulcers of this form appeared almost as frequently after the mercurial as the non-mercurial treatment, and were generally observed in men of robust habit. They healed slowly, and were very apt to return.

“The second species of ulcers of the tonsils formed without tumefaction or inflammation. The first appearance was a broad patch of excoriation, the

base of which exhibited nothing like excavation, but on the contrary was often elevated. It was either not at all or very slightly ash-coloured, the edges indistinctly cut. This excoriation extended over the whole tonsil, and had this peculiarity, that it very seldom affected the voice, and only in a very slight degree. Ulcers of this description were most common after the non-mercurial treatment. They were cured easily and rapidly, and often healed spontaneously.

"In the third species of ulcer the tonsils swelled greatly, but were neither inflamed, painful, nor altered in colour. Circular excavations formed, secreting a muco-purulent fluid, and of which it was impossible to say with certainty whether they were real ulcers or the mouths of the enlarged mucous follicles. These swellings affected deglutition, but did not in general interfere with speech; they appeared most frequently after the mercurial treatment, did not get worse, and when they had attained to a certain height, generally resisted all applications, so as frequently to require excision. Enlargements of the tonsil, without any ulcer-like cavities, were not unfrequently observed; these either formed of themselves, or remained after the healing of ulcers of the third species, and often required excision.

"Ulcers of the arches of the palate and uvula were frequently observed. They were always ash-coloured, surrounded by an inflammatory border, interfered greatly with speech, and generally appeared after the mercurial treatment, but were not refractory to treatment.

"Ulcers on the soft palate commenced in the form of vesicles situated on an inflamed base, containing the first day a transparent fluid, which became thicker on the third and fourth day, when the vesicles burst, and became converted into a Hunterian chancre. Frequently a number of them formed simultaneously, increased in size, coalesced, and in this way gave rise to ulcers of very considerable size.

"Ulcers on the posterior wall of the pharynx had always an ash-coloured base, altered the speech greatly, were in general covered with a viscid greenish mucus, a portion of which flowed down when the mouth was opened, so as to render it a matter of difficulty to recognize them. Ulcers of this kind always appeared after long mercurial courses, and healed very slowly, but with certainty."

Syphilitic eruptions were found by Dr. Fricke so various and complicated as to render their classification a matter of difficulty. Most of them, however, exhibited in general the characters of one of the following classes:—

"1. Pimples, at first discrete, of a bright liver colour, on a level with the skin in the commencement, but afterwards somewhat raised and indurated; they appear first on the forehead, and then on the breast and back, but rarely on the extremities; they were not in general covered with scales, or surrounded with an inflamed areola; often formed small purulent vesicles, and rarely exceeded in size the head of a large pin. They generally appeared after non-mercurial treatment, and disappeared quickly and completely.

"2. Brown spots, at first light, but afterwards darker, and of a copper hue, from two to six lines in diameter; roundish or angular, raised somewhat above the skin, flattened, shining, and covered with scaly laminae. They appeared at first on the back, breast, and nape of the neck; then on the arm and forearm; and afterwards extending over the face, forehead, scalp, and lower extremities, so as to give the patient a mottled appearance. When the disease went on unchecked, the spots increased in size, became harder and

more elevated, engaged the skin more deeply, and when neglected passed into ulcers, or into the following class. This form of eruption was generally seen on patients who had taken mercury for the primary disease.

"3. Very large purple spots, from one to two inches in diameter, or more, somewhat indurated, with outlines imperfectly circular, in consequence of their angular projections, generally single, seated on the extremities and shoulders, raised above the surrounding skin, partly raw, partly covered with crusts, and frequently changing into deep ulcers. They often appeared with the colour above mentioned, or formed small, hard, deep-seated purple spots, which increased in size, and sometimes were formed from spots of the second description. They never appeared on the face, but always on the shoulders, and on the upper and lower extremities, were extremely obstinate, and always left behind them a discoloration of the skin. This form of eruption was observed only in cases where large quantities of mercury had been used.

"The second and third forms were the only ones that ended in ulceration. These ulcers were of various kinds, but in general were characterized by an unequal base, imperfect granulation, corroded edges, and an inflamed areola. A third form of ulceration was also frequently observed; this was the result of chronic abscesses, and generally occurred in syphilitic cases of long standing.

"TREATMENT OF SYPHILITIC ERUPTIONS.

"The treatment was extremely simple. It commenced always with ablutions with soap and warm water, and the purging mixture of Epsom salts; by these means alone the eruption No. 1 was generally cured. In cases of the eruption No. 2, after a few days we proceeded to the use of nitric acid baths (from one to two ounces of the acid to each bath), along with the internal use of the decoction of the woods, to the extent of eight or twelve ounces in the day. The diet was at first low, but was afterwards gradually improved. During the first period the patients were confined to bed; but when the eruptions became milder, they were allowed to walk about their rooms. When the spots became pale, the skin smooth, and the face and forehead clean, exercise in the open air was regarded as a means calculated to complete the cure. The spots on the face were moistened frequently in the day with a solution of corrosive sublimate (twelve grains to twelve ounces of water), or of nitric acid (a scruple to twelve ounces of water), and in milder cases disappeared so much in the course of four weeks as to allow the patients to take exercise in the open air.

The spots described as No. 3 came much less frequently under our notice, but they were of the most obstinate description, and were very slow in disappearing. In some cases, after employing the foregoing and other external remedies in vain, we have derived remarkable benefit from covering each individual spot with small blisters. As soon as the blister rose, and a raw surface formed, marsh-mallow or zinc ointment was applied, and cicatrization promoted as speedily as possible. After this application the spots became much paler, smoother, and more like the sound skin; they also became less prominent, and exhibited fewer raw patches.

"In general, we considered the use of baths as the most valuable means of cure in syphilitic eruptions. The following were those chiefly employed:—

"Fresh-water baths were used as well in the commencement of the cure, with the view of trying their effects on the eruption, as also at a later period,

for the sake of cleanliness, particularly where there was a copious detachment of scurf. Soap baths (in the proportion of a pound of yellow soap to each bath) always constituted the first step of treatment in every form of eruption. Partly, we were able to draw a tolerably fair conclusion from their influence on the eruption, as to the quickness or brevity of its course; and partly they were found sufficient in many cases to effect a cure without any other remedy. From six to eight baths were in general found sufficient for the removal of the eruption marked No. 1, and from twelve to sixteen for that of some others resembling No. 2; in the commencement, at least, they exerted a favourable influence over all. Saline baths (composed of two pounds of common salt to each bath) were used only on a few occasions, and without any remarkable effects.

"Vitriolated zinc baths (consisting of two ounces of sulphate of zinc to each bath) were prescribed with good effects in the eruption marked No. 2, but were very seldom employed. Of nitric acid baths we have already spoken.

"Sulphuric acid baths (consisting of two ounces of the strong acid to each bath) exerted a favourable influence on the eruptions.

"Corrosive sublimate baths (half an ounce of the sublimate to each bath) were often employed, and were of great service, particularly when preceded by soap and nitric acid baths. They seemed to remove the eruption more speedily than even the nitric acid baths. In the eruption marked No. 3 they did not answer our expectations.

"Bran baths operated with remarkably good effects in the eruption marked No. 1; they also rendered the third description milder, and thereby contributed to diminish it.

"During the year 1827 the venereal patients took on the whole 14 saline baths, 38 zinc baths, 103 bran baths, 302 sublimate baths, 314 nitric acid baths, and 330 soap baths.

"AFFECTIONS OF THE BONES.

"*Caries of the bones* was never seen in any case which had been treated without mercury throughout; the bones which were most frequently attacked with caries were the nasal, palatine, maxillary, sternal, and tibial.

"*Pains of the bones* were of various kinds. The following varieties were those chiefly observed:—

"1st. Fixed pains in the centre of the bones. These were generally felt in the bones of the shoulder, forehead, and forearm, but chiefly in the tibia. The pain was dreadful; increased by the heat of the bed at night, and by the slightest touch, it in general deprived the patient of all sleep, and was accompanied by nodular swelling, which sometimes terminated in abscess and caries.

"2nd. Fixed pains in the ends of the bones. Sharp, lancinating pains were felt most frequently in the knee, ankle, and shoulder-joints, more rarely in the hip, elbow, and wrist-joints. These were sometimes slight, sometimes intense, and of an inflammatory character. They were aggravated by cold, great heat, pressure, and on the approach of night; but relieved by warmth and moisture, particularly the latter, which produced local perspiration. They were frequently combined with anasarca swellings of the parts, and, when neglected, sometimes terminated in effusions of water or pus into the synovial membrane of the joints.

"3. *Fixed pains in tendinous parts*.—Tense lancinating pains were felt in

the tendinous expansions and ends of the muscles, particularly those of the head, nape, back, and shoulders ; sometimes, but not always, increased by pressure, relieved by warmth and moisture, and exasperated by cold, particularly cold draughts of air. They resembled rheumatic pains, were extremely obstinate and harassing, and sometimes ended in partial paralysis.

"4. *Flying pains*.—These were felt in various parts of the body, in the head, the joints, arms, femur, and tibia, and generally appeared where the patient had been exposed to cold after mercurial frictions. They sometimes disappeared of themselves, and sometimes became fixed, but seldom harassed the patient so much as the foregoing species.

"The treatment of the first species of pains was much easier than that of the second or third. In the first species the only thing which was found to be productive of certain and permanent relief was to make an incision over the painful part down to the bone. As soon as this was done, and a poultice applied, the pain ceased, and never returned. The incisions varied from one to two inches in length. The periosteum and bone were in general swollen, and the latter was often found carious, or covered with sanious pus. Leeches, cataplasms, and alkaline baths were of little use, except at the commencement, or in very slight cases. Pains of this description generally came on after the use of mercury, but were also observed in two instances at the termination of gastro-rheumatic and rheumato-nervous fever. Pains of the second description were treated antiphlogistically. When of an inflammatory character, leeches, cataplasms, rest, and the free use of opium at night in general proved successful. Warm or sulphur baths were frequently given, and the patient took nitre or the acids by day. Pains of the third kind were treated with alkaline or sulphur baths, tartar emetic ointment, warm clothing, frictions, and, when on the decline, exercise in the open air, and a cautious use of the cold bath. Flying pains generally yielded to warm baths, but sometimes required the line of treatment applied to pains of the third species.

"Iritis and alopecia were observed only in a few cases, and invariably in patients who had been treated with mercury."

LECTURE LXIV.

SYPHILIS CONTINUED.—ITS PATHOLOGY AND TREATMENT.

IN my last lecture I drew your attention to the conclusions at which Dr. Fricke had arrived when he published his *Surgical Annals* in 1828.

As ten years have since elapsed,* during which Dr. Fricke has continued to conduct the treatment of the venereal patients in the Hamburg hospital, I took the liberty of writing to him, for the purpose of ascertaining whether subsequent experience had induced him to alter his views. His answer was that, instead of altering his views, experience had confirmed them. Dr. Fricke, at the instance of Dr. Oppenheim, had the kindness to discuss some of the most important topics connected with syphilis, in the presence of a well-informed and intelligent young surgeon, a friend of Dr. Oppenheim, who took notes of what Dr. Fricke said, and transmitted them to Dublin for my use. These notes I now proceed to lay before you; and, in doing so, I beg leave to observe emphatically, that Dr. Fricke cannot be held responsible for them, inasmuch as though I believe them to be in every respect accurately taken, yet allowance must be made both for misconception of Dr. Fricke's meaning on the part of the gentleman who took the notes, and of errors on the part of the translator. The latter I have endeavoured, if possible, to avoid; for the translation, made originally by Dr. West, has been since carefully revised by Mr. Swift and myself, and I think, therefore, I can answer for its fidelity.

It is scarcely necessary to add how much I feel obliged to Dr. Fricke for the readiness with which he complied with my request, and the trouble he has taken to fulfil my wishes. The great hospital of Hamburg, under his care, affords one of the best schools for medicine and surgery with which I am acquainted, and affords the best opportunity for the study of venereal complaints. In truth, I strongly advise students who wish to obtain a knowledge of Continental practice to go to Hamburg in the first instance. Half a year, or a year, spent in that city, will afford them more chance of obtaining sound practical information, than if they had repaired to Paris or Berlin.

Among the German writers who have contributed to advance the rational treatment of syphilis, Dr. Oppenheim has mentioned Brunninghausen of Wurzburg, Pokkels of Brunswick, Von Walther of Bonn, and more particularly Fricke of Hamburg,† who published several papers on the subject in *Rust's Magazine* for 1826 and 1831, and in *Casper's Wochenschrift* for 1834.

Subsequently, Dr. Fricke communicated, in his *Surgical Annals* for 1828, his very important observations on the rational treatment of the disease,

* This Lecture was delivered in 1838.

† “Dr. Oppenheim himself has indirectly, but powerfully, assailed the mercurial treatment in his work, *Behandlung der Lustseuche ohne Quecksilber*, Hamburg, Hoffman and Campe, 1837; which contains an erudite and accurate list of all the remedies which up to that time had been successively employed in the treatment of syphilis.

which I have already brought before you. G. Handschuh (*On the forms of Syphilis and their Treatment*, Munich, 1831), who has given an elaborate and critical history of the pathology, prophylaxis, and treatment of syphilis, with a view to the more extensive diffusion of a harmless system of treatment (a task subsequently executed with more accuracy by Bonorden), often refers to these observations of Dr. Fricke, and attempts also to prove that under the name of syphilis are comprised a number of diseases which have probably no mutual relation, and in the treatment of which mercury is usually employed. Even at the present day, German practitioners in general repose the highest confidence in mercury. No one appears to concern himself about its *modus operandi*, or why it should be preferred to all other remedies in the treatment of syphilis, every one pursuing with respect to it the same reasoning in a circle as with respect to Peruvian bark. Bark cures intermittent fever, but intermittent fever cannot always be cured with bark.

Dr. Fricke, however, has had no reason to abandon his new method of treatment; on the contrary, further experience has not only confirmed his previous observations in every instance, but also a series of cases, now amounting to several thousands, has forced upon him the conviction of the *superior efficacy of what has been termed (but incorrectly) the antiphlogistic method*, and at the same time has led him to new views with respect to the nature of syphilis, a disease exceedingly complicated in itself, and rendered still more obscure by the hypotheses put forward with respect to it, some with more, others with less foundation. As the result of his investigations it may be stated:—

That syphilis has two constituents, namely, *contagion* (a source to which attention has been almost exclusively directed) and *disposition*, an agent of equal importance, at least so far as the origin, reproduction, and treatment of the disease is concerned. To this result of his I shall now proceed to call your attention; and first as regards contagion:—First. Numerous experiments in which the pus of chancre was mixed with mineral poisons (as, for instance, chlorine, corrosive sublimate, arsenic, &c.), or with vegetables (as cicuta, belladonna), or with the matter of itch or small pox, have invariably afforded the same result, viz., the production of genuine chancre. Hence we may conclude that contagion is something extremely subtle, and capable of maintaining its own vitality, and consequently that it must be very difficult to invent a preventive against it. Even the application of ice or heat to the inoculated spot fails in arresting the development of chancre.*

Secondly. The syphilitic, like all other contagions, has a tendency, when its course is not disturbed, to develop itself on the membranous tissues, particularly on the confines of tissues of different kinds, as for instance on the prepuce (the normal secretion of which allows us to class it as intermediate between skin and mucous membrane), around the anus, at the terminations of the intestinal and bronchial membranes, and on the conjunctiva, a membrane which holds an intermediate rank between the mucous and serous. The most obstinate form, condyloma, generally selects such transition spots or intermediate tissues. The history of contagion informs us, that in prevalent and severe cutaneous affections it is the result of contact between individuals in different states; and the practice of medicine teaches us that attention to the skin, or, in other words, cleanliness, is beyond doubt one of the most effi-

* Eisenmann asserts on some occasions, but erroneously, that the admixture of corrosive sublimate destroys the syphilitic virus. Fire certainly destroys it, but still it is not an anti-syphilitic.

cient remedial agents, and its observance a main condition of cure. Mercury, with its pseudo-syphilitic cutaneous affections, as well as all other antisypilitic remedies in repute, promotes or produces directly an excitement of cutaneous activity. Nodes, independently of being the reflex action of the disease on the periosteum (a membrane which belongs rather to the secreting than the dry fibrous tissues), form no argument against this position.

Thirdly. True crises are scarcely to be expected or observed in chronic diseases of the skin. We should, however, always bear in mind, that the constitution requires a certain degree of power to react against contagion, and resist the morbid process which the latter endeavours to establish; and that this power is least of all to be interfered with where the existence of a morbid predisposition, but more particularly of the scrofulous diathesis, is likely to destroy its due balance. In such cases mercury is positively injurious.

Fourthly. The contagion of syphilis seems to possess a certain degree of protective power against the same disease. Thus, if an infected person be inoculated with the virus, he is much less likely to take the disease than a healthy, uninfected person. In this, however, the local and general condition of the system which occurs during coitus, and strongly disposes to the reception of contagion, plays an important part. If, however, a person affected with chancre were inoculated with the matter of that chancre on a fresh spot, and from this on a third, and so on, it will be found that this process can be repeated only a few times with success. The individual becomes, as it were, habituated to the virus, and less susceptible of its influence. In the same way, no secondary affections are capable of being propagated by inoculation. May we not, then, look upon these affections as a salutary effort of nature to check the progress of the disease? The relative immunity, too, enjoyed by some females, seems to depend upon the constitution being, as it were, stimulated to reaction and spontaneous cure by a second contagion. In persons of this kind, an inveterate lues, that is, a modification of their whole organic system by the syphilitic contagion, may exist for a long time without offering a single point of attack for therapeutical agency. Even connexion with such individuals, provided they are free from local sores, is not dangerous to others.

Fifthly. How long the period of incubation of the contagion may last is not determined. There are cases in which a connected series of symptoms of alternate improvement and aggravation points out the struggle of the constitution against the contagion, the latter ultimately gaining the ascendancy, and exhibiting itself more and more in fresh secondary affections. Often, however, these affections, breaking out after a number of years, are not of a truly syphilitic character, but the result of a cachexy produced in a system already undermined by previous attacks of syphilis, and by a variety of noxious influences which develop morbid diatheses, or bring into play acquired predispositions. Hence, in all localities favouring the production of cachexies, we find peculiar forms of disease which we are forced to look upon as syphiloid, inasmuch as they present the same modified forms as scrofulous and impetiginous disease in which syphilis is known to have the initiative—a property shared by it in common with measles, small-pox, and all other contagious affections. In such a case as this, to attribute the whole series of morbid phenomena to the previous syphilis would be as incorrect as to regard growth as the sole cause of phthisis. Growth merely develops an original disposition, viz., the phthisical; and we have only to suppose that the disease existed in a latent form to avoid all error on the subject.

Sixthly. The original seat of contagion is either the mucous membrane of the genital organs and its mucous follicles, or the chancreous, *i. e.* a portion of external skin brought into the condition of a mucous membrane.

Seventhly. No advantage to the treatment of syphilis results from making distinctions between its primary forms, and particularly between gonorrhœa and the syphilitic virus. They all get well under the (so-termed) antiphlogistic treatment. The mucous membrane of the male genitals, which occasionally becomes violently inflamed, and secretes copiously and obstinately from the mere introduction of bougies, or the matter of non-syphilitic blepharophthalmia, is irritated by the syphilitic virus just as it is by these foreign chemical or mechanical influences. Gonorrhœa, however, for the most part has its origin in other morbid sources (leucorrhœa, the period of menstruation, before and after the same, &c.) which are modified solely by coitus, by it produces a noxious effect on the system, and without it are to be looked upon as harmless. We have not hitherto been able to tell by the appearance of the discharge from what source it arose. The conjunctiva is much more frequently observed in a purely inflammatory state than the mucous membrane of the urethra.

Eighthly. Sometimes, but very rarely, we observe a transition from gonorrhœa to chancre. In 200 cases in which inoculation with gonorrhœal matter was performed, there were only two instances of chancreous sores as the result. A greenish yellow discharge from the uterus produced by inoculation genuine chancre, and gave rise to gonorrhœa when introduced into the male urethra by means of a fine bougie.

Ninthly. The importance of bearing in mind the disposition is still further shown by Richter's supposition of the existence of a gonorrhœal lues, and Autenrieth's of a gonorrhœal scrofula. Every disease affecting the whole system, and syphilis and gonorrhœa among the rest, is capable of awakening dormant predispositions; hence, syphilis or gonorrhœa may give rise to tumours of the joints and nodes in persons of a rachitic or rheumatic constitution. The sympathy between the kidneys and urethra is remarkable in one point of view, namely, *that in gonorrhœa the urine is found to contain a large quantity of albumen.* What the consequences may be of the removal of so much albumen from the system, whether it be a species of natural antiphlogistic, or whether chemical analysis can prove the existence of a deficiency of albumen in the blood, is not yet determined; it is a condition, however, which has been observed in connexion with many forms of cachexy. The mental impression caused by gonorrhœa—the almost incurable hypochondria syphilitica—indicates some important alteration in the admixture of the fluids. The interesting observations of Gutterböck, Wood, Vögel, and Henle, on mucus and pus, establish for mucus (inasmuch as it is now to be distinguished from pus) a high rank among the organized fluids; and, in fact, the albumen ovi, which bears an analogy to the mucus of the genitals of the mammifera, is a species of pus or mucus secreted by the oviduct, and of great importance in the generation of the bird.

And now as regards disposition:—The state of the system, and in particular of the cutaneous tissue, is deserving of consideration, not only during coitus, but also during the whole course of the disease. Many persons do not take the disease either by coition or by inoculation, and, in general, persons in a tranquil healthy state do not receive the contagion even when the virus is brought into contact with abraded surfaces. Dr. Fricke, on one occasion,

while examining a gonorrhœal patient, had the whole contents of an urethral lacuna squirted into his eye ; simple ablution of the part prevented all bad consequences.

The delicate skin of fair persons, and that of the negro, favour the reception and spread of contagion ; the same is the case with persons of a dirty, greasy skin, or where the functions of the skin have been injured by an unquiet life, or by change of climate. Hence, the inhabitants of northern climates, who in general seem to exercise a stronger reaction against contagion, suffer much more when they visit more southern regions. Hence, also, the rich suffer less than the poor. Persons of a sanguine temperament are in general the most susceptible ; the whole system in such persons, and the mucous membrane in particular, being in a state of excitement. France would suffer less from this disease, were it not for the slight attention paid to the skin, and the use of mercury.

The scrofulous and rachitic, the rheumatic and gouty diatheses, the predisposition to lupus and herpes, have alike an influence in determining the form of what has been termed secondary syphilis. As there exists in some individuals a complicated predisposition to sore throat, probably depending on a scrofulous diathesis, the predominance of the mucous tissues, and gastricism, the eruption of ulcers of the throat may be apprehended under the following circumstances :—The throat is narrow, the tongue arched, and with difficulty pressed down in the mouth ; the back of the throat cannot be seen without exciting nausea ; the mucous membrane secretes copiously, and is covered with moisture ; the soft palate is of a more or less deep red colour ; the arches of the palate hang very low down ; the glosso-palatine higher than the pharyngo-palatine ; the uvula, which in the normal condition has only a red stripe down its centre, is of a uniform red colour, covered with mucus, and adheres readily to either of the tonsils ; the latter stand near each other, are red, and covered with a viscid mucus ; the whole mucous membrane of the throat is very sensitive, secretes more copiously when the mouth is kept open, and becomes redder, as if new vessels became suddenly developed in it. Under such circumstances we may naturally expect ulcers in the throat ; under opposite conditions we look for them in vain. Sometimes the mucous membrane of the posterior nares becomes indurated, applies itself to the tonsils, and produces excoriations, which, however, heal under the use of emollient injections. The occurrence of fresh catarrhal and gastric derangements seems to have a considerable influence in bringing about all syphilitic metastases, or at least directs the force of the morbid process to parts already weakened and predisposed. The predisposition to buboes depends upon other causes as well as scrofula ; among these we may mention much walking or bodily exertion. Women are more liable to these glandular affections than men ; persons of spare habit and firm fibre, as also persons labouring under hernia, in whom the parts are subject to constant pressure from a truss, seldom suffer from them unless they happen to be in a highly cachectic condition. Not unlike bubo in many respects is the disease termed orchitis blennorrhagica (inflammation of the epididymis, and infiltration of its substance with organized lymph, owing to the extension of urethritis sympathetically, or by metastasis), an occurrence which may be expected when we find the vas deferens becoming swollen and painful. The testicle itself remains during the whole time unimplicated ; it is, however, frequently displaced, and hence, in order to detect it, the part must be examined very closely. The lymph is infiltrated so completely, and becomes so intimately combined with the substance

of the epididymis, that the consequent hardness in many instances will not yield to any remedial agency; and though it may be somewhat reduced by compression, it remains quite perceptible even after the lapse of twenty years.

There exists naturally a sympathy between the mucous membrane and the skin. An exanthema is sometimes produced not only by balsam of copaiba, but also by turpentine given for the cure of gonorrhœa. The syphilitic cutaneous affections depend partly on the virus being either wholly neglected or imperfectly cured, or, as is frequently the case, aggravated by the abuse of mercury, partly on the sympathy already alluded to. The peculiar form of the eruption depends partly on the condition of the skin, and partly on what has been termed the acrimony of the fluids or dyscrasy. Persons of a dark complexion and a dirty freckled skin are most liable to these eruptions. Itch appears to have less power in modifying the eruption than other dyscrasies, as, for instance, the herpetic. The occurrence of gonorrhœal ophthalmia and of syphilitic iritis furnishes strong proofs of the existence of a species of elective affinity, of an unknown metastasis from one diseased tissue to another predisposed to disease. The former affection, if it be produced by infection from contact, should be more frequent. Interruption of the urethral discharge is never the cause of epididymitis (on the contrary, inflammation of the epididymis and the parts in its vicinity acts as a derivative on the gonorrhœa, and arrests its flow), much less can it be exclusively the cause of inflammation of the remote conjunctiva. Hence, we must ascribe to this membrane (forming, as it does, a transition membrane between the mucous, serous, and cutaneous tissues), a greater predilection for the virus of clap than to the mucous membrane of the ear or nose. It is quite plain that iritis arises without contagion, and without any other metastasis than that common to all syphilitic affections. Indeed, it comes on frequently after a protracted treatment, either with or without mercury. The iris conducts itself here like the fibrous periosteum; it is not affected until some time after the external tissues of the eye, which afforded, as it were, a kind of point of attraction for the disease.

There exists, also, a peculiar disposition to condylomata, as pseudo-products, among which the conical condylomata, as being parasitic productions endowed with remarkable vitality, present the characters of the contagion in the highest degree. Whether the pathological process by which they are generated be the same as that by which the fungosities of ulcers are formed, and whether their bases be a structure intermediate between polypus and wart, remain still undecided. Dr. Fricke saw them appear as the harbingers of more serious affections, as, for instance, of fungus medullaris of internal organs. Prof. Otto (in his *Danischer Zeitschrift*, 1838, heft 2) relates an instance of their production as the result of unnatural coitus between two persons perfectly free from syphilis. Rognetta (*Gazette Medicale de Paris*, June, 1836) describes a species of warty growth from the anus which might have passed for condylomata had not the chastity of the individuals been well known; hence we are not, in all cases of condylomata, to assume the pre-existence of syphilitic contagion. Again, with the tendency to form condylomata, there coincides a tendency in the skin to form warts and corns—a tendency, the source of which is probably seated in the mucous membrane of the kidneys, or of the digestive apparatus in general. The flat condylomata heal readily, but the conical can by no means be destroyed, so that we are forced to leave them alone, and let them wear themselves out. They prove themselves to be a mere secondary syphilitic formation by this fact—one cannot produce chancres from them: the moisture exuded by them produces only excoriations and condylomata

of the parts with which it comes in contact, just as all acrid secretions do, and any secretion may be regarded as acrid to all parts to which it is not the natural stimulus. The primary and secondary condylomata are very similar; the circumference of the former, however, is less than that of the latter, and their secretion is not so copious.

With regard to affections of the bones (the occurrence of which indicates that the system has yielded to the morbid influence of the syphilitic poison), affections, too, which make their appearance in persons disposed to cachexies, who have scarcely escaped rickets, and who have already a tendency to rheumatism and gout, even here mercury is not free from all blame as a cause. This opinion is supported by the power which mercury has of destroying vitality, and hence of destroying the vitality of pseudo-products; by the circumstance of mercury in the reguline state having been found in the bones, and the fact that these affections disappear on the occurrence of symptoms of salivation.

It is an undeniable fact, that syphilitic affections, and even ulcers resembling chancres, or the sores produced by inoculation with the matter of chancre, may be congenital; but it rarely happens that infection takes place during birth, much as the condition of the child's skin might seem to favour the reception of the virus. Women labouring under syphilis in a very high degree give birth to children which are healthy, and continue so, just as occurs with mothers affected with herpes and other morbid predispositions. Where discharges or eruptions of a syphilitic character appear immediately after birth, they have already lost their contagious property (they cannot be reproduced by inoculation), and this seems to favour the opinion that the syphilitic contagion acts much more than others as a mere morbid stimulant, producing no peculiar cachexy, and merely maturing or modifying pre-existing morbid diatheses. Thus a scrofulous person, by means of syphilis, becomes more or less truly scrofulous, and in many cases for the first time only at a late period, and where his health has been disturbed by other causes, after the actual cure of the syphilitic affection. It is then not syphilis, but the original morbid diathesis modified by syphilis, which becomes propagated. Hence, in deciding on a plan of treatment, this diathesis, or, as we have termed it, *disposition*, is the chief point for consideration; and hence, also, results the curability of syphilis by so many different means. The same thing holds good with respect to what are termed relapses, which occur under every form of treatment, and more frequently under the mercurial; because, where there is hereditary predisposition, a new morbid stimulant will be given to scrofulous, herpetic, rheumatic, and gouty affections. Hence, too, the origin of those exceedingly obstinate chancrous ulcers of the prepuce, constantly re-appearing after imperfect cicatrization, and consequently after detachment of the cuticle. The edges, for instance, remain callous; hence, slight motion is sufficient to break open again the badly-healed ulcer. In the latter case cataplasms, in the former astringent applications, to diminish the sensibility of the prepuce, produce the best effects.

Let me now call your attention to the conclusions at which he has arrived as to therapeutical principles. To establish the rationale of treatment, it would be necessary to attain a knowledge of the origin of the contagion; the mere treatment, it is true, does not require that any regard should be paid to the contagion; it can be cured without it, and mere experience will lead to the establishment and proof of a counter-poison and a real poison. But the theory of treatment requires this consideration. How, then, are we to ascer-

tain the nature of the virus? The period of its origin may be more certain than the place, but the period is as remote as the persons who first observed the disease, and the constitutions which presented themselves for observation. The following facts, however, demand our attention :—

First. The contagion results from the contact of different individuals, and of the external skin or semi-mucous membrane of the male with the mucous membrane of the female.

Second. It is promoted by the mucus of the female, which is inclined to acrimony, and which, as well as the seminal fluid of the male, is a highly vitalized product, and looked upon as contributing to vital development.

Third. By the mixture and mutual neutralization or solution of different spermata, as well as by their predominant constitutional influences.

Fourth. It is received when the sensibility of the part is in the most exalted state.

Fifth. It shows its action more especially on all the sensible organs of reproduction; modifies, as has been already stated, every morbid disposition; or matures and stimulates the existing disposition to increased action or pseudo-production.

Now, if bearing in mind what we learn from physiology and therapeutics, we call the contagion a *pseudo-sperma*, or in other words a peculiar albumen—the result of the exercise of the generative function—we thence get an explanation, 1st, of the congestion which it produces in the generative organs, as in gonorrhœa; 2nd, of its tendency to attack and involve all the reproductive tissues, especially the skin; 3rd, of its tendency to the formation of pseudo-products; 4th, of its tendency, proved also by the history of the embryo, first to attack sensible parts; 5th, then to develop itself according to certain antitheses (poles or metastases); 6th, the indications for treatment, the happy results of which afford a further conclusion as to the nature of the disease, as well as an explanation of the success of other methods, and particularly of mercury.

The method of treatment to be employed deserves the name of the *anti-plastic*. Sudden weakening of the system by venesection is, with a few exceptions, wholly unnecessary; on the contrary, the constitution may at first require a generous diet to enable it to sustain the reaction. If during its continuance the sores increase, they disappear so much the more speedily afterwards, when the abstinence-cure is commenced. This, however, need not be made a complete hunger-cure, and perhaps it has been laid down too strictly in the *Chirurgie Annalen*; the severity of it should be lessened in proportion to the patient's improvement. On the other hand, a too careful or solicitous attention to cleanliness cannot be shown.* Rest is an excellent antiplastic. During its observance chymification and assimilation are less active; all the functions are carried on with less energy; and thus the contagion, neglected as it were and limited in its seat, dies out of itself. Of itself it possesses naturally but little power, and where cleanliness and regulation of the diet are attended to, as well as a proper regard paid to the peculiar disposition of the patient and the course of the disease, rest may be less strictly enforced after the lapse of a few days. A plentiful meat diet is apt to bring on buboes, while a strictly vegetable diet tends to give rise to condylomata. Internally it will be sufficient to administer Epsom salts in such doses as to produce a few evacuations daily, and even in this point we may

* From this cause, as Dr. Fricke has often convinced himself, the rational method often fails in private practice. We are not able to enforce cleanliness, which is generally attended with pain, and we are obliged to trust too much to the patient's statements.

abate a little in our original strictness after a few days. Decoction of sarsaparilla, infusions of senna or carica arenaria, and the acids, particularly the nitric, are also employed with advantage. Hydriodate of potash, either with or without decoction of sarsaparilla, is an admirable remedy, and greatly esteemed in many parts of Germany.

Mercury, even supposing that it did not exercise a more injurious effect on the system than Peruvian bark, must, as a specific, militate against a sound knowledge of disease (for all specifics lead to a false system of therapeutics), and particularly of syphilis, in which everything depends on individualizing and accurately examining the morbid predisposition. The secondary forms in particular require a regulation of those functions whose disturbance constitutes the source of the disease, and consequently a regulation of diet in the strongest sense of the word. The stomach and skin are the two organs which are chiefly deranged. The same plan of treatment which we would follow in treating cases of herpes, scabies, scrofula, gout, rachitis or periostitis, depending on ordinary causes, must be also followed where these diseases have been called into existence by the syphilitic virus. On the whole, however, secondary syphilis is rarer than is generally imagined. Neither secondary symptoms nor relapses require treatment different from that which is adopted in the cure of primary symptoms; a treatment the chief features of which are, that it is external, not opposing or obstructing nature, but rather assisting her by cleanliness, &c. Fresh air often cures cutaneous affections in a short time; condylomata disappear after the lapse of a certain time under the use of a variety of escharotics, without our being able to fix on one as a specific. At all times regard should be paid to morbid states of the constitution, and morbid temperaments, and we should take especial care not to excite any cachexy in the patient. A mild limitation of vital activity is sufficient to cut off all support from the morbid parasitic action, or at least to obviate all unfavourable influences.

A minute account of the modifications which have been made in the treatment described in the *Chirurgie Annalen* would require a treatise as long as that in which they were originally set forth. We must therefore refer to the work, as it would require a whole book to give the results of a thousand registered cases.

I have now given you the results obtained at Hamburg by Dr. Fricke, respecting the non-mercurial treatment of syphilis; and I shall next lay before you some extracts from a paper published in the *Berlin Medical Gazette* by Dr. Struntz, and although I cannot agree with the learned doctor in all the conclusions he has drawn, yet his facts are too valuable to be passed over in silence.

The following is the sum of Dr. Struntz's observations on the non-mercurial treatment of syphilis in the venereal wards of the Charité Hospital at Berlin. These observations extend over a space of twelve months, and were made under the direction of Professor Kluge.

Of 741 patients (some of them greatly neglected), Dr. Struntz has not met with a single case in which the non-mercurial plan has not succeeded, when combined with a rational consideration of the peculiarities of the local disease. On the other hand, he has seen many out-patients treated with mercury for weeks and months together, without any advance being made towards the healing of primary sores, or in many instances without any effect in arresting their destructive progress. The primary symptoms more particularly alluded to are chancres and acuminated or broad condylomata.

In the Charité Hospital at Berlin not only primary sores, but all forms of the disease, from the slightest to the most intense, have been treated for the last half-year without mercury. It might be objected to the non-mercurial plan of treatment, that it does not afford any protection against the recurrence of the disease—that it does not ward off secondary symptoms. This may be very true, but neither does mercury. Among the many hundred patients who came under Dr. Struntz's notice during the course of a year (and to this point he paid the most particular attention) there was not a single case of secondary syphilis in which he did not discover, either from personal examination, or from an inspection of the prescriptions brought by the patients, that mercury had been used for the primary affection. If mercury, then, will not secure the patient from secondary symptoms, is it not unreasonable to have recourse to another plan, which, at most, cannot be attended with more unfavourable results, and which is free from the disadvantages of generating a double poison in the system. It is true that by proper attention to diet, rest, cleanliness, the avoidance of exposure to cold, and other precautions, most of the bad effects of mercury may be obviated; but how are we to secure the fulfilment of these conditions among the poorer class of patients outside the doors of an hospital?

Again, is the diagnosis of syphilitic ulcers so easy, that a man can pronounce at once that this or that ulcer is a true venereal chancre? How much observation and experience are required to enable a man to decide this apparently simple question! Is it not well known to every practical and experienced surgeon, that sores are frequently seen on the genitals, not produced by syphilitic affection, and yet presenting almost all the characters of syphilis?

The results obtained at the Charité were most satisfactory. All cases of primary sores, including condylomata (two-thirds of which are looked upon as primary symptoms), were treated successfully without mercury. The number of patients discharged cured was 733, and of these Dr. Struntz had not met with a single case of secondary symptoms up to the period of publication (September 30th). Many of these patients were prostitutes, and constantly under the surveillance of the hospital surgeons. Dr. Struntz does not wish to intimate that he places implicit reliance on the non-mercurial treatment pursued at the Charité, or that the method is infallible; all he wishes to say is, that of all the primary cases treated in this way at the hospital, not a single one was followed by confirmed lues, or even by those milder forms of the disease which have been described by Bonorden and others as secondary syphilitic exanthemata. Both modes of treatment were followed at the Charité, but it was found that under a similar management of the local affections, those patients who were treated with mercury could not be discharged for two, or three, or even four weeks later than those who had not taken any mercurial preparation. It is true that condylomata are apt to return, but this occurrence takes place as often under the mercurial as under the non-mercurial treatment, particularly when the local treatment has been commenced before the condylomata have completed their development, or where they have not been completely eradicated at first.

In cases of syphilitic exanthemata, psoriasis, and impetigo, where corrosive sublimate and red precipitate had failed, Zittmann's decoction was used with good effects; latterly, however, Dr. Struntz has been in the habit of giving a pint daily of a decoction containing sarsaparilla, carex arenaria, guaiacum, mezereon, sassafras, and senna; and, in conjunction with warm baths, and in more obstinate cases with nitric acid, he succeeded in accomplishing the de-

sired effect. "It may be observed," says Dr. Struntz, "*en passant*, that in many cases, after, and during a course of mercury, particularly red precipitate and corrosive sublimate, I have seen psoriasis guttata and impetigo sparsa arise; the former disappearing after the mercury had been omitted. Latterly we had also some cases of ulcerated throat, and commencing ozæna with mercurial complication. It may appear somewhat bold in cases of this kind to exchange an old and esteemed remedy like mercury for sulphate of magnesia; but in our patients, the racking pains of the head and nose were relieved, the discharge ceased, and the ulcers healed in a remarkably short space of time. About the commencement of July three young men were admitted into the venereal wards. One of these had been under a course of calomel and corrosive sublimate previous to his admission; the others had also taken a considerable quantity of mercury, and were labouring under ozæna and periostitic pains. By the use of sulphur baths, the hospital decoction, and a nutritious diet, all were greatly improved in the space of a fortnight, and their improvement went on so rapidly that one was dismissed cured at the end of the month, and the ulcerated sore throat was beginning to cicatrize. A case of syphilitic iritis is deserving of notice.

"A servant girl had been admitted in the August of the preceding year for condylomata, which extended from the orifice of the vagina to the anus. She had been treated with calomel, and afterwards with corrosive sublimate, and the condylomata were either cauterized or removed by excision, but still returned as fast as they were destroyed. She then took Zittmann's decoction without benefit, and after some time reverted to the use of calomel. Scarcely had her mouth become fully affected (she had taken 7 doses of 10 grains each) when she was attacked with an impetiginous eruption of the face, and soon after with iritis, bearing all the characters of a syphilitic inflammation. Bloodletting, leeching, and antiphlogistic measures were employed, but in spite of every precaution an abscess formed on the iris. The calomel having proved useless was discontinued, and the patient ordered the decoctum lignorum speciem of the *Pharmacopœia Militaris*, combined with a mild antiphlogistic treatment. Under this treatment the pus, which lay at the bottom of the anterior chamber, was reabsorbed in the space of a fortnight, the pupil resumed its natural form; in a word, all the traces of iritis had so completely disappeared, that many professional men could not distinguish the sound from the previously diseased eye unless it was pointed out to them. She was completely cured of her obstinate primary symptoms by the non-mercurial plan. I cannot decide what share mercury may have in the production of these secondary affections, but I cannot believe that it is wholly without influence on their origin."

Such, gentlemen, are the facts recorded, and the observations made, by Dr. Struntz, to which I shall now add the contents of a letter which I have received from my friend Dr. Oppenheim of Hamburg—a gentleman whose extensive practical experience, derived from upwards of a thousand cases, entitles his opinions to the most attentive consideration:—

"On receiving your letter I endeavoured to fulfil your wish, and the result of my endeavours is the following sketch. I fear it will not give you full satisfaction, being rather theoretical than practical, but it was impossible for me to examine all the Hospital Reports and cases in so short a space of time. I have, therefore, commissioned a very industrious young physician to communicate the points held in view in Fricke's treatment, and the following manuscript is the result:—

"In Hamburg the number of non-mercurialists increases daily; among

the young physicians, who have been practitioners for the last eight years, there are only two or three mercurialists. In fact, I very seldom meet with truly malignant and inveterate cases, and these are always cases in which a great deal of mercury has been taken previous to admission into hospital. For such cases as exanthemata or lepra syphilitica, broad condylomata, nodes, tophes, syphilitic gout and rheumatism, I know but two remedies, which I employ alternately, according to the constitution, age, season of the year, circumstances of the patient, &c., viz., Zittman's decoction, repeated, if necessary, at intervals, and the external and internal use of hydriodate of potash (5ss.—3j. in the 24 hours).

"Disease of the bones, or of the periosteum, I have not met with in any case in which the patient had not taken mercury.

"With respect to chancres, when in the first stage (the chancre-vesicle), I touch them with caustic; afterwards the treatment is regulated by the degree of inflammation (painfulness) present. Rest (the recumbent position) and diet are most important means; the large, mound-like indurations are best treated with poultices. One of the best applications for promoting the healing of chancres is *copper*, in the form of Köchlin's solution, diluted according to the sensibility of the patient.

"Recent buboes I endeavour to disperse by abstraction of blood and compression; when these means fail, and they become chronic and indolent, with an inclination to suppurate, the superincumbent skin is covered with lunar caustic (more rarely a blister), which produces either dispersion and reabsorption, or healthy suppuration.

"With respect to the frequency of secondary symptoms, private practice affords us no information. From our hospital experience, they appear to be not more frequent than under the mercurial treatment; but the form is different; that is to say, there is less venereal sore throat than exanthemata.

"Gonorrhœa is a most annoying form of disease—it is cured, and is not, by every plan of treatment. Copaiba, in various forms and combinations, after the inflammatory symptoms are removed, proves more serviceable than cubebs. In gleet most advantage is derived from keeping a bougie in the urethra.

"Melancholia syphilitica is a frightful disease, one for which there is often no remedy to be found, and under which the patients pine away.

"This is the substance of my brief communication; but I shall always feel most happy in answering any questions you may propose. With respect to Copenhagen or Berlin I cannot give you any information, except, that in the Charité, Kluge has renounced mercury."

To render the subject more complete, I shall now give the opinions of my respected friend, Dr. Staberoh of Berlin, also communicated in a letter, which I received on the 25th of October, 1838.

"In the hospital at Berlin, called the Charité, syphilitic patients are still treated without mercury; even in the worst cases its employment is less frequent than in Hamburgh, under Fricke. According to the published reports, the results of this treatment are very favourable; these reports you will find in detail in *Rust's Magazine*, and also an extract from them in *Kleinert's Repertorium*. But, however favourable these reports may be, one curious circumstance must be borne in mind, viz., that secondary syphilitic affections are not usually admitted into the hospital destined for venereal patients, but sent into the wards of the surgical clinic, so that in the venereal department the great majority of cases which come under treatment are primary affections. These patients are dismissed as soon as cured, and they scarcely have in the Charité any means of ascertaining the frequency of secondary affections. The

published reports naturally take a colour from the opinions of the physicians who are opposed to the use of mercury, and those who visit the wards have seldom an opportunity of watching accurately the progress of the cases. I am not aware that any comparative trials have been made between the mercurial and non-mercurial plans. Such may have been instituted formerly, but certainly on an insufficient scale. No person could have better opportunities of making them than the army surgeons, particularly since the inspection of the genitals, directed by law, brings the syphilitic affections of soldiers under their observation from the very commencement. In order to obtain as accurate an account as possible of the treatment of syphilis in the army, I addressed myself to the 'General Arzt,' Lohmeyer. However, strange to say, there is no printed account of the matter, and the reports which are in existence are of such a nature as to preclude the possibility of stating any thing definitely. Most of the old army surgeons treat syphilis with mercury, but many of those lately appointed, and who were on the Hospital Staff when Professor Kluge followed the non-mercurial plan of treatment, do not employ mercury. They are also satisfied with their treatment, although it is said that in some instances they have had recourse to mercury in consequence of the failure of the simple method. Even were it in my power to give numerical statements, they would prove nothing, since the decision of the question would depend on submitting an equal number of cases to the two modes of treatment.

"As the army surgeons are not bound to any particular mode of treating syphilis, it would be easy for them to institute such comparisons, if they were conducted without prejudice. In England, physicians and surgeons in extensive practice are generally connected with hospitals also; the case, however, is quite different at Berlin. I cannot refer to Dr. Kluge's private practice, for he does very little in town; and I am acquainted with only one eminent physician who treats syphilis without mercury—and, after all, his private practice is not large enough to warrant our drawing from it any conclusion. Medical men are divided on the treatment of syphilis; the physicians, however, in largest practice use mercury without looking on it as a specific. I know a physician who tried the non-mercurial plan on a small scale, without its results inducing him to change his plan of treatment. After all, if the want of confidence in the non-mercurial treatment expressed by the physicians here proves nothing, it says but little in favour of the results obtained at the Charité, and which even have been adduced by some as instances of an inefficient method. In conclusion, I shall just sum up the results of these imperfect statements, which I have not attempted to render complete, fearing that they will arrive too late to be of service.

"1. The syphilitic patients in the Charité take no mercury while in the venereal wards under Dr. Kluge's care.

"2. In the surgical wards, where most of the cases of secondary syphilis are found, and into which no primary cases are admitted, the patients are treated with mercury.

"3. Any statement of the proportion of relapses in the cases treated at the Charité after the non-mercurial plan must be very uncertain, if not impossible to be ascertained.

"4. In town the mercurial is employed in preference to the non-mercurial treatment.

"You are, without doubt, acquainted with the publications of an army surgeon, Dr. Bonorden, at least through the abridgment in *Kleinert's Repertorium*. He, too, seems not averse to the non-mercurial plan of treatment;

and most practitioners speak of it with respect, although they do not follow it. Professor Krukenberg of Halle was, at least a few years since, a strenuous defender of this plan, and alluded to the employment of mercury as an instance of prejudice. Many of his pupils have brought these ideas with them into practice, but I have not as yet seen any brilliant results from them. The case may be the same as with all absolute methods ; every practitioner has seen primary sores cured by simple cooling treatment."

LECTURE LXV.

SYPHILIS CONTINUED.—SYPHILITIC OPHTHALMIA.—SECONDARY SYMPTOMS.—USE OF MERCURY.

NOTWITHSTANDING all that has been done to illustrate the pathology and treatment of syphilis, it must be confessed that these subjects are still involved in much difficulty and doubt. A fact so incontestible, and so much to be regretted, makes it the imperative duty of every clinical lecturer to contribute whatever materials his experience may supply in elucidation of questions so important. For this reason I have been induced to lay before you the observations in my last two lectures on detached points of interest connected with the venereal disease. I shall, therefore, beg leave to direct your attention to-day, first to the case of a woman lately admitted into our wards labouring under syphilitic iritis.

From the history of her symptoms we learned that, after a primary venereal affection, she got pains principally affecting the joints of the upper extremities, and aggravated at night. About a fortnight after admission she was attacked with papular eruption and syphilitic iritis. I beg you will recollect the character and order of this woman's symptoms; at first, she would not admit the existence of a venereal taint, stating that her pains were only rheumatic, and that she knew no cause for them except cold. Now, in her case, the arthritic affection was seated chiefly in the smaller joints; one of her wrists, and the hand and finger joints were swollen, tender, and painful, and, at the first glance, had a very strong resemblance to the hand of a person labouring under rheumatic arthritis. It is generally believed that pains of a syphilitic character occupy chiefly the shafts and ends of the long bones; but in this instance we find that syphilitic inflammation may give rise to swelling, tenderness, and pain of the small joints, corresponding in many points with what has been regarded as rheumatic inflammation. We have another case of syphilitic inflammation of the synovial membrane and joints in a young woman in the small wards; but in this case the larger joints are chiefly affected. It is absurd to suppose, when a general disease like syphilis produces pain and inflammatory swellings, that they should be always limited to the long bones or their periosteum, for we find many instances in which the synovial membranes are also engaged.

A point worthy of notice in this case is the manner in which the iritis appeared. We were treating the woman for the pains I have just alluded to, when she was attacked with iritis in a very insidious manner. There was scarcely any pain over the orbit, vision was but slightly impaired, there was no remarkable alteration in the state of the pupil; in fact, with the exception of some intolerance of light, and some conjunctival redness, there was scarcely anything to indicate the occurrence of iritis. But whenever a person suspected to labour under syphilis gets inflammation, particularly if limited to

one eye, no matter whether it commences in the internal or external tissues, you should watch it closely, for the chances are that it will prove syphilitic ophthalmia, endangering vision. And such was the result in this case ; for in four or five days the woman exhibited symptoms of decided iritis. It has been very properly remarked that the name syphilitic iritis is calculated to mislead : for the iris, in many cases, is not the part principally or primarily attacked ; and, in some instances, it appears to escape entirely, although the vision is lost. Syphilitic ophthalmia appears a better name for this affection.

There is scarcely any disease which occasionally proves so insidious in its approach as syphilitic iritis, nor is there any form of internal inflammation more variable in its progress, degree, or intensity. Sometimes it commences internally, attacking in the first instance the tissues of the iris and the adjoining parts, proceeding in its course with remarkable intensity, and destroying vision completely, if not arrested at once. In such cases it is accompanied by severe pain, intolerance of light, lachrymation, and increased vascularity of the sclerotic, so that no one can mistake it ; but at other times its approach is so insidious, and its progress so slow and painless, that the vision of one eye is lost before the patient is aware of it. The iris is then seldom engaged until a late period of the disease ; and the slow inflammation by which vision is ultimately destroyed commences in the deep-seated tissues of the eye. In many cases, as in that now before us, it takes a contrary direction, commencing in the external parts of the organ, and being usually ushered in by conjunctivitis, apparently simple, and produced by cold. Hence, you perceive, there is a great variety as to the mode of origin, progress, and intensity of syphilitic ophthalmia, and from this you will infer that there must be some diversity in the treatment.

The physician is to be chiefly guided by the intensity with which it attacks the eye, and hence the treatment which would be proper for one case would be wholly unfit for another. I am anxious to advert to this matter, as I think we did not treat the case of this woman as we ought to have done, had we considered its nature more attentively. If syphilitic ophthalmia be of an intense character, attacking the iris and lens at once, and threatening to destroy vision in a few days, the activity of our treatment must be proportionate to the imminence of the danger ; we must bleed, leech, and give calomel and opium in large doses, say ten grains twice or three times a day, and must continue its administration until the mouth is affected. In this instance, a disease that would destroy vision in three or four days is cured in the same space of time ; and the activity of our treatment is adapted to meet the intense and rapid character of the ophthalmia. We produce full salivation in as short a time as possible, and apply the extract of belladonna to the eyelids to keep the pupil from contracting.

In syphilitic iritis there are many shades of intensity, and the treatment must correspond with the existing symptoms. Now, if the disease be of a chronic nature, and has advanced slowly, it must be made to recede slowly. You should endeavour to remove it by the gradual ingestion of mercury, aided by the usual local means. In the former case you have only three or four days for action, in the latter you have as many weeks. Hence, I think, we were too precipitate in our treatment of this woman. Her disease came on slowly, and without violent or urgent symptoms, consequently we ought to have treated her mildly, giving small doses of calomel or blue pill, so as to bring the system gradually under the influence of mercury. But we salivated her at once, and the consequence was that, although she improved at first,

the disease became afterwards exacerbated. Had salivation been gradually superinduced, the relief obtained would have been less speedy, but more certain and permanent.

Let us now apply these principles to the case of the young man who has been admitted this morning, presenting symptoms of secondary syphilis in a well-marked form, but simple and uncomplicated by any previous treatment. He took no medicine for the primary or secondary symptoms, except two pills, which he got at the dispensary about two months ago, and which were not followed by any sensible effect. The secondary symptoms came on with pains and feverishness, and are at present extensively diffused over his body in the form of elevated blotches, of a character intermediate between the papular and squamous. About four or five days back he was advised to take a warm bath for his pains, but having to walk a considerable distance afterwards, the day also happening to be chilly and sharp, he got cold in returning home, and soon after experienced pain in the left eye, with lachrymation and diminution of the power of vision. Had he been exposed in the same way while in health, he would probably get slight conjunctivitis, or sore throat, or bronchitis; but the case was altogether different with a man labouring under a constitutional affection, having a tendency to manifest itself in almost every tissue of the body, and prepared to modify every form of inflammation to which accident might give rise. Again, if the man's constitution was in a sound state, his feverish cold or conjunctivitis, or sore throat, could be removed by very simple means, such as bathing the feet, taking a little warm whey on going to bed, and some opening medicine the next morning. But here the state of the constitution occasions the substitution of syphilitic iritis for simple conjunctival inflammation, and demands a peculiar plan of treatment. You are now aware that persons who have taken mercury for syphilis, without being entirely cured, are very liable to get iritis on slight exposures. Some persons attribute this entirely to mercury; but mercury in such cases merely acts by rendering the patient more liable to cold, so that when iritis occurs in a patient who has been under a mercurial course, it is not in consequence of the direct operation of mercury, but by its increasing his liability to be affected by impressions from cold. For the same reason, the circumstance of his having taken mercury before is not, as some persons maintain, any argument against his using it a second time.

On examining this man, we found that he had some pain referred to the eyebrow; the eye is also more vascular than natural, and presents that appearance which is so characteristic of iritis; there is some alteration in the colour of the iris along its free margin, but no irregularity of pupil. Along with these symptoms there is dimness of vision, and objects appear as if seen through a veil. This arises not from any opacity of the cornea, or opalescence of the aqueous or vitreous humours, but from inflammation affecting the iris, ciliary zone, and probably the coats of the retina. In such cases, where the inflammation spreads from the iris to the ciliary zone, it would appear that the ciliary nerves and retina partake in the mischief, for vision becomes affected before we can discover any appearance of derangement in the optical instrument. The peculiar appearance of the eye in this man, the change of colour in the free margin of the iris, and the diminution of the power of vision co-existing with an eruption of the skin, point out the nature of the disease and that the affection of the eye, though proceeding from a common cold, has been modified by the syphilitic taint in the constitution.

In order to prepare his system for mercury, I have ordered him to be bled,

purged, and put on the use of antimonials for two or three days. Venesection, purging, and tartar emetic may be of some use in relieving or arresting the symptoms of iritis, but I do not place any great reliance on them for removing the disease; I merely employ them as auxiliaries, depending on mercury for the cure. And let me again observe, that there is considerable variety in cases of iritis. Some are extremely mild; there is no palpable sign of acute inflammation present, and the chief symptom is diminution of the power of vision; such attacks are sometimes not perceived by the patient until some accident informs him that the sight of one eye is nearly gone. In other cases, after reaching a certain point it begins to decline, and frequently terminates spontaneously. Others present symptoms of a more decided character, but still are free from danger. Every attack, however, where the inflammation is at all of an intense character, will go on to destroy vision, unless met by prompt and efficacious treatment. In this man's case the symptoms are not very acute, and hence there is no necessity for having recourse to mercury at once; the disease might certainly terminate in disorganization of the eye, but it would be some weeks before this would be accomplished. On the other hand, there are cases which, if neglected, would destroy vision irremediably in the space of three or four days. Such cases require extremely prompt and energetic measures. But where iritis is not of a violent kind, you need not depart from the plan of treatment you would have laid down for the cure of syphilitic affections where no iritis existed. Here you bleed, leech, apply belladonna to the eye, and give calomel in doses of ten grains or a scruple every third or fourth hour, so as to bring the system as rapidly as possible under the influence of mercury.

With respect to belladonna, I believe you are all aware of its value in iritis. Some think that its action is merely mechanical, that it dilates the pupil and no more; but I am firmly convinced that its influence is not limited to mere dilatation of the pupil. I believe that it acts on the vitality of the eye, and that when employed externally or internally, it possesses the property of diminishing the irritability of that organ, and thus tends indirectly to remove local inflammation. In scrofulous ophthalmia, where the eye is exquisitely sensible, where the slightest exposure to light causes intense pain and copious lachrymation, one of the best remedies I am acquainted with is belladonna, given internally. Thus you perceive that belladonna has not only a mechanical action, producing dilatation of the pupil, and tending to prevent adhesions, but also by its influence on the retina and ciliary nerves, diminishes the irritability of the eye, and aids materially in effecting the removal of local inflammation.

You will, then, whether you treat syphilitic iritis, or syphilitic pains and periostitis, or sore throat, or eruption, be guided by the character and progress of the symptoms. If the disease has come on gradually—if it be mild or chronic in its nature, and no vital part threatened—you may take time, and proceed gradually in mercurializing your patient. But where the vitality of an organ or part is endangered, you must act with promptitude, and throw in mercury, as it is termed, at once. Thus, as I have already remarked, where syphilitic ophthalmia attacks the eye in such a manner as to be likely to destroy vision in a few days, it will be necessary for you to give five or ten grain doses of calomel three times a day: and the same line of practice will be required when periostitis attacks the orbit, particularly the thin plate of bone between the eye and the brain, or when it fixes itself in the internal table of the cranium, and threatens the dura mater.

I may observe here that a consideration of the nature of those tissues in which scrofula is most commonly developed, will give you much information with respect to the administration of mercury in venereal affections, and the energy with which this agent is to be employed on various occasions. The vitality of the white tissues is low, and their inflammatory affections of a more subacute and chronic character; and hence not demanding such energetic treatment as where tissues of a higher order are attacked. This you may lay down as a general rule. But there are some exceptions, as in the case of an organ composed of various tissues, as the eye; or when it attacks purely albuminous tissues in a very acute and intense form. In general, the vitality of periosteum and bone is low, and so is that of most of the tissues of the eye; and whenever you have to treat inflammations of such parts, you should not expect to be able to produce any sudden change, for parts of this description require a considerable time for the restoration of their healthy functions. Hence, in the majority of cases, periostitis and syphilitic ophthalmia, with the exceptions already alluded to, are to be removed by a mild alterative treatment, by small doses of mercury and gentle frictions, so that some weeks shall elapse before the mouth is affected. Nor should you attempt to bring on full salivation: touch the gums slightly, and keep them in that state for some time, exhibiting as much mercury as will just keep up its influence in the system.

I shall again recur to the subject of periostitis, but I may here observe, that you will require considerable discrimination to determine in some cases whether the affection you are about to treat is syphilitic or not. You will find many examples of periostitic inflammation depending wholly on a scrofulous taint in the constitution; for scrofulous inflammation is often fugitive, and attacks the periosteum before it fixes in the bones. You may also have periostitis from rheumatism, or from gout; but one of the most common causes of periostitis, in persons not labouring under syphilis, is connected with the secondary effects of mercury on the constitution. Persons who have taken mercury for any disease, no matter whether it be pneumonia, pleuritis, or hepatitis, are afterwards subject to periostitic inflammation, and this liability continues not for months only, but even years. Indeed, periostitis is one of the most common effects of mercurialization, particularly if the patient be exposed to cold while taking mercury. In the course of one, two, three, five, or even a greater number of years, exposure to cold, a blow, and other apparent trivial causes, give rise to periostitis in some individuals. I have attended, with Sir Philip Crampton and Mr. Cusack, a gentleman labouring under periostitis of the tibia and cranium; and on inquiring into the history of his case, we found that it was nearly nine years since he was salivated. I have also witnessed a very severe case of periostitis affecting the shafts of both tibiæ in a lady who took mercury about five or six years ago for supposed hepatitis.

One of the most remarkable cases of periostitis after mercury which ever came under my notice, I witnessed in the person of a gentleman who was for some years surgeon to the British Envoy to Mexico. In that country, raised nearly 12,000 feet above the level of the sea, and exposed at once to sharp winds and a burning tropical sun, fevers of an intense character often prevail. Some time after his arrival, this gentleman was attacked with fever, for which he was fully salivated. He caught cold during his convalescence, and was attacked with periostitis, and cured by mercury as before. The year after, the same series of accidents was repeated. I forget how many successive attacks he had, each originating from cold, and each, like the former, removed

by mercury. At length the mercury seemed to lose its power over the disease, and was no longer capable of relieving it. He returned to this country with the view of improving his health by change of air, and presented a most extraordinary spectacle. The periostitis had chiefly fixed itself in the cranium, which it had altered so as to have no longer any resemblance to the human skull. When I saw him, a considerable portion of the pericranium and bones of the head had been affected with periostitis for three years without any intermission. His skull would have defied the scrutiny of Gall and Spurzheim, for its shape was the most extraordinary I ever witnessed. He was in the habit of taking large quantities of opium to procure some alleviation of his sufferings, and was restless to such a degree that he was frequently for fifteen or twenty nights together without an hour's sleep. Altogether he was in the most pitiable state; and seldom got any relief until the attacks were wearing off, when he enjoyed some brief intervals of repose.

Some fifteen or twenty years ago, when the subject of the treatment of syphilis was warmly canvassed, it was asserted by the mercurialists that mercury never gave rise to nodes or periostitis, unless where there existed a syphilitic taint in the constitution. Now I can attest from manifold experience that this is not true; the gentleman whose case I have related had never been affected with syphilis. But there is no necessity of insisting on this point; every practical physician knows that mercury may and does give rise to a train of symptoms bearing some analogy to those of secondary syphilis. Thus, after the use of mercury, a patient may be attacked with feverishness, pains in the bones, nodes, sore throat, and an eruption to which the name mercurial eczema has been given. Here you perceive we have a remarkable analogy between the diseases produced by mercury and syphilis. Mercury when exhibited improperly may produce all the affections I have enumerated, and, in addition to these, caries of the bones, particularly of the nose and palate. It is well known that some active remedies have a tendency to produce diseases somewhat analogous to those they are known to cure. This is frequently observed with respect to mercury, belladonna, strychnia, quina, hydriodate of potash, and some other powerful medicinal agents. In fact, it is hard to expect that a remedy will cure a disease affecting a certain tissue or tissues, unless it has some specific effect on such tissues; and in this point of view we have an example of the "*similia similibus curantur*" of the homeöpathists.

Mercurial ostitis of the head is a very common form of disease; its more usual seats are the frontal and parietal bones, but it is sometimes observed also on the other bones of the skull. In general, the inflammation affects the external table of the bone, and is then easily recognised from the tenderness and swelling of the corresponding portions of the scalp. Sometimes, however, the inflammation commences in the internal table of the skull, and where this occurs, the disease wears a much more alarming aspect, for it is then apt to implicate the dura mater and subjacent portions of the brain. In such cases, the true nature of the complaint is not unfrequently overlooked, or mistaken for some other disease causing headache. This is a very serious and fatal error, for unless the physician is aware of the real nature of the malady he has here to contend with, he will seldom adopt proper measures, and the patient will fall a sacrifice. Such cases are indeed obscure, but we may in general make out their true nature by a careful attention to their history. Thus, if severe nocturnal headaches arise in a person who has ostitis in other bones, and if the pain darts from some fixed point, then, although all external tenderness be wanting, we may safely conclude that the cerebral affection originates in

ostitis of the cranium. In investigating such cases, I have derived much advantage from percussion. I place the back of one finger on the patient's head, and tap it smartly with the fingers of the other hand. If internal ostitis be present, every tap excites a peculiar internal pain in the part affected, which pain is the greater the nearer the part percussed is to the seat of the disease.

You have seen in our wards several men complaining of very agonizing headache without any external tenderness; and you have witnessed in these cases the failure of the common means for relieving pain in the head, and the success which followed the adoption of a treatment founded on a true diagnosis of the disease. This headache,—yielding to no other species in severity, depriving the patient altogether of rest, occasionally occupying chiefly one side of the head, and most severe at certain hours,—is not unfrequently mistaken for nervous hemicrania, and treated with iron! When ostitis occupies the external table of the cranium, it seldom strikes inwards, so as to engage the internal, and disorder the brain. That it does so sometimes appears from several cases; among the rest, that of Mary Wilkinson, admitted into our ward on the 21st of October. In her the scalp was excessively tender, and felt in one part thickened and boggy. There were dilatation and increased pulsation of the external arteries supplying that side of the scalp. On the 27th, the headache increased, and she fell into a state of profound coma, with dilated pupils insensible to the light; the extremities were cold, and pulse scarcely perceptible. Luckily, while in this state, the mercury previously administered began next day to affect her mouth, and, aided by large doses of calomel and powerful blistering, soon restored her. Such a recovery very seldom takes place. Ostitis is also very dangerous when it occupies the orbital and contiguous portions of the frontal bone. It is very obscure when seated at the base of the skull.

Mercurial ostitis is a very common occurrence in the cervical vertebræ, but comparatively rare in the dorsal. In the lumbar it becomes again more frequent, but not so much so as in the cervical. I have, however, seen some cases where the dorsal vertebræ appeared to be almost all engaged in the disease, and where, consequently, the greatest agony was experienced on their being touched or moved. Pathologists have not yet paid sufficient attention to the species of neuralgia which is occasioned by inflammation of the nerves or their sheaths spreading from the surface of the bones through which they pass.

Nothing is more certain than the fact that, in many, the abuse or even the use of mercury renders the constitution disposed to ostitis on future occasions, when cold and damp act on the body, especially if fatigued by exercise, or exhausted by dissipation. This ostitis is consequently called mercurial: but this name must not mislead us; for, strange as it may appear, the disease often yields readily to mercury—a mode of treatment generally effectual for the moment, but attended with the obvious disadvantage, that it leaves the patient more liable than ever to future and severe relapse, which will at last refuse to yield to mercury.

There are two cases of syphilis in the house at present, one in the female, the other in the male chronic ward, on which I wish to make some observations now. They possess no peculiar interest beyond the ordinary run of syphilitic affections, still they deserve a share of your attention; for it is on your experience of individual cases, much more than on the knowledge derived

from books, that your treatment of this obscure and protean malady will depend.

It is not more than a year since the female patient received the syphilitic poison into her constitution. What the nature of that primary sore was we cannot ascertain, but, from the account she has given, it seems to have been true chancre. Some time after this occurred she got sore throat, articular pains, and an eruption, for which she was treated in this hospital about ten months since, and dismissed apparently cured. The disease, however, returned in a few weeks, and she has been labouring under its effects up to the present moment. Three circumstances in this case demand our attention: first, the re-appearance of syphilis after a mercurial course—for she was mercurialized here soon after her first admission; secondly, she exhibits a degree of syphilitic cachexy, being rather pale and emaciated; and, thirdly, the slow progress which the disease has made in her system, being limited to a few blotches on the skin, some periostitic swelling of the bones of the leg, pains, and slight arthritis.

In treating this case I intend to give mercury, so as to affect her system; and, having accomplished this, I shall keep her under its influence for some time. I shall also, should it appear necessary, order her a free allowance of the decoction of sarsaparilla. Under this treatment you will find that the eruption will soon disappear, the periostitic pains and swelling be removed, and the constitution begin to improve. She has been ordered three grains of blue pill and half a grain of calomel, three times a day—a quantity which you will generally find sufficient to bring on mercurial action in females. I have no doubt but that the disease will, in this case, yield to mercury in a very short time, and that her health will be completely restored. The failure of mercury in producing a permanent cure, on a former occasion, is no argument against its employment here; if there were no syphilitic taint in question, I do not know any remedy by which the cutaneous affection and the periostitis could be more effectually relieved.

The other patient, John Kelly, presents an eruption of red scaly blotches, extensively diffused over the trunk and extremities, and closely resembling psoriasis. This man, like many others, denies the occurrence of a recent syphilitic taint, and gravely states that it is some years since he exposed himself to infection. Instances of this kind are to be met with every day; patients will not tell the truth about these matters, and false statements tend to throw a darker shadow over a disease in itself sufficiently obscure. However, in this case, the poison seems to have confined its effects to the cutaneous surface; there is no affection of the throat, periosteum, or joints. The eruption covers almost every portion of his body; it made its appearance two months before admission, and was preceded by feverish symptoms and pains in the larger articulations.

In undertaking the treatment of this case, there is one practical point to be held in view. The man's general health is good, his strength undiminished, and his circulation active. I therefore ordered him to be bled, and have kept him for eight or nine days on antimonials and low diet. By preparing him in this way, I knew that the mercury which I intended to give him would act more rapidly on his system; and such was the case—for on the second day after he commenced using it his mouth became affected. But here a difficulty arose, which, in cases of this description, is apt to embarrass our treatment; the mercurial influence appeared much sooner than I expected

or wished. He had been ordered three grains of blue pill and half a grain of calomel, three times a day ; and on the second day, before he had taken six pills, salivation commenced. Now, in all cases where mercury affects the mouth sooner than you desire, and as it were in spite of you, it will not do as much good as where its action proceeds regularly and in accordance with your purpose.

It is a general rule, that most benefit is to be expected from mercury where its action is regularly progressive, or where the quantity taken is in proportion to the effect produced on the system. Hence we look upon it as an unfavourable occurrence, when a small quantity of mercury occasions sudden and copious salivation ; such an event deranges our calculations, and tends to embarrass our practice. Now in this case the patient, after taking five pills, became salivated on the second day. We found we had been going on too fast ; it was necessary therefore to pause, but not to desist. We accordingly reduced the quantity of mercury to three grains of blue pill and half a grain of calomel, to be taken every second night. By these means we kept up a slight discharge of saliva, and the man's symptoms began to improve. The eruption is now disappearing rapidly, and it is to this point I wish to call your attention. What are the marks which indicate the subsidence of an eruption of this kind, and by what criterion are you enabled to judge of the progress of the cure ?

When the parts are about to return to their healthy condition, three circumstances occur ; first, the vivid red or copper colour of the eruption begins to fade ; secondly, the heat of the affected parts becomes reduced ; thirdly, the excessive secretion of morbid cuticle is arrested, and the quantity of minute scales covering the blotches diminished. In such cases the affected parts of the skin are highly vascular, and the secretion of cuticle is morbidly excessive in quantity ; hence the continued desquamation from the surface of the blotches. You should, therefore, not merely attend to the colour of the eruption, but also to the quantity of minute scales on each blotch, when you wish to ascertain whether the eruption is fading or not. You can judge of this by your eye, or you tell it by passing your finger over the diseased surfaces. The fading of the colour of the eruption, the decrease of the elevation and roughness in the blotches, and the gradual disappearance of the minute scales—these are the circumstances by which you can ascertain the subsidence of a syphilitic eruption. As the cure progresses, you find the parts assuming a more natural appearance : the same quantity of morbid cuticle is no longer thrown out by the affected spots of corium : the blotches become smooth and lose their elevation, and, finally, the red colour of the skin disappears. Of all the symptoms, discoloration of skin is the last to recede, and it generally happens that enough has been done in the way of treatment long before the skin resumes its natural complexion. If you were to continue the administration of mercury until the natural colour returned, you would very often push it to a useless and even dangerous extent. In such cases, a faded brownish or dirty tinge remains long after the re-establishment of healthy action.

In one of the first lectures which I have given on this disease, I stated that, notwithstanding the host of facts bearing on the question of the non-mercurial treatment of primary and secondary syphilis, there is still much difference of opinion amongst men of the highest rank in the profession. One good has resulted from the statements put forward by the army medical

practitioners, namely, that mercury is no longer abused in the empirical and barbarous manner followed by our predecessors. Few, if any, at the present day, will be found to enter upon long and exhausting courses of mercury for slight chancres or sores, in persons of delicate or scrofulous constitutions; and I believe the opinion is growing stronger and more general every day, that when primary symptoms occur, although mercury be omitted, or merely used as an alternative, the disease may be successfully treated. Let me, however, be understood in this matter. I make this statement in reference to those cases only in which the disease is treated from the commencement, and not allowed to go on unchecked for days or even weeks. I have already brought forward evidence to prove, that when genuine chancre is treated properly from the beginning, it may be cured without mercury. There must have been several cases of true chancre among Dr. Roe's patients, and yet of the entire number there was only a single case of secondary venereal, and that in a patient broken down in health and labouring under bubo for a considerable time before admission.

But you will ask—is it possible to cure secondary symptoms without mercury? If you are to believe some authors, you cannot. According to their views of the case, a patient labouring under secondary symptoms, if treated without mercury, may get well for a while, but the disease will return again and again until it breaks up his health. All I can say on the point in question is this, that I have seen several cases which were pronounced secondary syphilis get completely well without mercury. About ten or twelve years ago there was a case of secondary syphilis in this hospital, which I undertook to treat without mercury. It was a case of well-marked papular disease, which had made its appearance about six weeks after the primary sore; and, to remove all doubts on the subject, I showed the man to the late Mr. Hewson—a gentleman justly esteemed for his accurate and extensive knowledge of the venereal disease. He pronounced it at once a case of true syphilis, and added that it could not be cured without mercury. As there was no urgent reason for the exhibition of mercury, I thought the matter worthy of experiment, and treated the man with purgatives and antimonials, followed by vegetable alteratives and nitric acid. I did so, and succeeded in effecting a perfect cure. I kept the man afterwards under surveillance, to see if a relapse would occur. He never had a return of the disease, and Mr. Hewson was quite struck with the result, as he had no conception that the patient could be cured without mercury. Indeed this was the general opinion, the other surgeons of the Meath Hospital having arrived at the same conclusion. The case made a very strong impression on my mind, and, connected with others having a similar result, has convinced me that there is some truth in the statements of those authors who say that syphilis can be cured without the mineral.

On the other hand, I must confess that there are some cases which answer the description given by Mr. Colles, and which cannot be cured without bringing the patient under the influence of mercury. Thus, a very fine healthy young man, whom I attended some years ago, put himself under my care for chancre, after having neglected the disease for three weeks or more. Now, when a case of this kind, which has been allowed to run on unchecked, comes before you, you should not be too sanguine, or think that your patient will be perfectly safe under the non-mercurial treatment; for where chancres are neglected, secondary symptoms are very apt to occur. I treated him with purgatives, antimonials, rest, and low diet. He had no buboes, and got

quickly well; but about five or six weeks afterwards he was seized with symptoms of fever, accompanied by acute pains of the joints, and two days afterwards got venereal eruption and sore throat. He had in fact all the symptoms of venereal exanthematous fever, and his skin became covered with blotches—the character of which could not be mistaken. They were neither papulæ, pustules, nor tubercles, but true venereal blotches, terminating in scaly scurf. I gave him tartar emetic, followed by vegetable alteratives, and he got better. He continued well for about a fortnight or three weeks, and then another eruption broke out, attended with pains and fever as before. The non-mercurial plan was tried again, and was again followed by the same apparent success; the eruption faded, and his throat got better. He then took lodgings in the country for the benefit of change of air, but while there was attacked a third time more severely than before. He had fever, eruption, and sore throat, and, in addition to these, periostitis and nodes; he also became weak and emaciated. Under these circumstances I prescribed calomel and mercurial ointment, until his mouth became sore. His symptoms all gradually disappeared, and he has had no return of the disease. In this gentleman the greatest attention was paid to diet, confinement to the house, and every circumstance which could favour the success of the non-mercurial plan. The patient's constitution was excellent, and free from any scrofulous taint, and yet the syphilitic poison seemed to be rapidly undermining his strength, and the disease acquired fresh force from time, instead of growing less violent; in fact, its progress was so alarming that mercury could be no longer with safety withheld. A very moderate course of mercury, managed so as to keep his mouth tender for six weeks, thoroughly and permanently cured him.

Now, to what conclusion does all this lead? simply to this, and I believe it is the conclusion to which all rational men have come, that although there are many cases of syphilis which can be cured without mercury, there are others in which its employment is indispensable.

In the two cases which I have just related, the results were very dissimilar. In the first, a case which had been pronounced distinctly venereal by some of our most distinguished surgeons, and not to be cured without mercury, the non-mercurial treatment proved quite efficacious; the man was readily cured, and had no return of his disease. The other case, which you would have regarded as most favourably circumstanced for getting well without mercury, had quite an opposite result; the disease returned again and again, and did not yield completely until the system had been brought under the mercurial influence. Hence you perceive the necessity of avoiding extreme opinions, or coming to any general conclusions as to the treatment of syphilis.

The inferences which my experience has led me to draw on the subject are, that many cases of syphilis—indeed a great majority of cases of primary sores—may be cured without mercury, if treated at once and properly.

After chancres have existed for some time, the chances of secondary symptoms are greatly increased, and mercury in such cases will be often required; but it should be used with caution, and moderately. Were I to speak for myself, I would say that, as a general rule, I prefer the non-mercurial plan in the treatment of primary chancres, particularly if seen at the commencement, and where they appear in persons of a delicate and scrofulous habit. I think at least you will not be wrong in giving many cases of chancre a trial, and see whether you can cure them without mercury. If secondary symptoms appear, you have still a resource in mercury; the patient's constitution is unimpaired, and the disease is still amenable to treatment. If you treat your

patient properly, he has many chances in his favour; and if he gets secondary symptoms, mercury will still act favourably on his system. The rational practitioner is neither a mercurialist nor a non-mercurialist; he acts according to the state and peculiar exigencies of each case, and selects his plan of treatment according to the form, condition, and duration of the disease, as well as the constitution of the patient. If the chancres be of a mild and what may be termed indolent character, the application of nitrate of silver at an early period, combined with rest, low diet, aperients, and, if necessary, vegetable alteratives, will complete the cure. If attended with inflammatory symptoms, a vigorous adoption of the antiphlogistic plan will be indispensable, and the use of caustic applications must be deferred until the symptoms of inflammatory action are abated.

Whenever you get a chancre in its commencing period to treat, try the antiphlogistic and non-mercurial plans, and if your patient improve, persevere; but if there be no amendment, you may have recourse to the cautious exhibition of mercury. I say cautious, for in some constitutions you cannot be too careful in the administration of this remedy. The consequences which have followed from the injudicious use of mercury have been often and strongly depicted, but not in colours too strong for truth; the lamentable results which have attended its abuse rank among the greatest opprobria of medicine.

In Johnson's General History of Pyrates—a most curious book, published in 1725, and from which Sir Walter Scott has borrowed some of his best traits of nautical character—we find a passage proving the abuses of mercury were great at that period, and that even then facts were not wanting to show that this mineral was not indispensably necessary for the cure of syphilis. Talking of the Brazils, our author remarks:—"The generality of both sexes are touched with venereal taints, without so much as one surgeon among them, or any one skilled in Physick, to cure or palliate the progressive mischief. The only person pretending that way is an Irish *Father* or Priest, whose knowledge is all comprehended in the virtues of two or three simples, and those, with the salubrity of the air and temperance, is what they depend upon for subduing the worst of malignity; and it may not be unworthy to notice, that though few are exempted from the misfortune of a running, eruption, or the like, yet I could hear of none precipitated into those deplorable circumstances we see common in unskilful mercurial processes."

Who can read without shuddering the long detail of misery inflicted on unfortunate venereal patients in the time of our predecessors?—the exhausted salivations—the inveterate nodes—the frightful caries and sloughing—the emaciation—the hectic—the rapid or lingering, but ever fatal phthisis. Hundreds of victims, whose slight primary symptoms might have been successfully treated without a single grain of mercury, have had their constitutions gradually broken down, until at length scrofula became fully developed, and was quickly followed by its attendant, tubercular consumption.

Thanks to the exertions and labours of the army surgeons, we no longer behold the same indiscriminate exhibition of mercury, or the same wicked tampering with human life. The evils which have flowed from the abuse of mercury are greatly diminished, but still not sufficiently exploded from British practice. Notwithstanding all that has been said and done, a good deal still remains to be accomplished before the treatment of syphilis can be said to be placed on a solid and rational basis. I am not among those who contend that you should never use mercury. On the contrary, I think there

are cases in which you can employ it to great advantage—in fact, where its employment is indispensable. But I would have you always to act with caution. In treating cases of primary or secondary symptoms which have existed for some time, and where the patient has been taking mercury, it is hard to unravel the perplexities which surround the case, and ascertain whether the mercury has been properly administered or not.

Where a patient labouring under syphilis has been salivated without being improved, one of two things must be inferred—either that the mineral has had no effect on the disease, or that it has an injurious effect on the constitution. The great point to arrive at in the treatment of syphilis is to make the mercury act on the disease, and not on the constitution. This I have often endeavoured to impress on you. I will venture to say, that I would engage to give a patient labouring under primary symptoms any quantity of mercury without producing a favourable effect on the disease or doing him any good. I would engage to salivate a man affected with sore throat, and yet leave him as bad or even worse than ever. I have witnessed this occurrence over and over again, and have laid it down to myself as a proposition, that venereal may be treated with mercury to the fullest extent without being cured.

Syphilis and mercury are not like two opposite forces—not like an acid and an alkali—so that by putting them together you are sure to neutralize them. No. It is a melancholy fact, but true, that the constitution may be impregnated with both at the same time. Some time ago, a gentleman's coachman was admitted into Sir Patrick Dun's Hospital. He got primary symptoms, for which he took mercury; but being of active habits, and unwilling to quit his employment, he remained with his master, whom he was frequently obliged to attend at night. In this way he was often exposed to wet and cold, and used to take whiskey with a view of protecting himself. The consequence was that eight weeks afterwards he came into Sir Patrick Dun's Hospital, with his mouth sore and fully salivated, but labouring under bad sore throat and extensive eruption. In adverting to his case before the class, I said:—this appears to be a very bad specimen of the mercurial treatment, but you are not to conclude from what you see that mercury will not cure the disease. We will keep him in hospital, give him mild aperients, light nutritious diet, and sarsaparilla, and when we have removed the bad effects of mercury on his constitution, we will proceed to administer it again, but in such a way as to act on the disease, and not on his general health. About three or four weeks afterwards, the man was so much improved that we were able to put him again under a mild course of mercury, and succeeded in eradicating every symptom of the disease. Although a patient has got worse under the use of mercury, you should not conclude that it is incapable of curing the disease; it may have been administered improperly; and under such circumstances, I tell you again, no good can be expected from it. In such cases, the morbid action of mercury must be allowed to pass off completely before we have recourse to the mineral again; and if this be done with circumspection and care, the best and most favourable results may be expected. I agree perfectly with the judicious observations put forward on this subject by Dr. Lendrick, and I would strongly recommend every gentleman present to read his excellent observations published in the 11th, 12th, and 17th volumes of the *Dublin Medical Journal*.

As in many acute diseases, particularly those of the class Exanthemata, so in syphilis you may have great variety in the symptoms. Some of them will be faintly shadowed out, or altogether absent, while others may manifest a

remarkable prominence. In measles you may have the eruption without the catarrhal symptoms; in scarlatina, the sore throat without the eruption; or, what is still more curious, the desquamation and dropsy without any apparent preceding symptoms. So also in syphilis, in which you may have chancre without bubo, sore throat without eruption, or periostitis without any well-marked appearance of symptoms which usually precede in the order of time. You are not to expect that the disease will always appear in the form laid down by the great John Hunter, or that the symptoms will pursue the precise order marked out by him.

As in an acute disease, where not merely a single symptom, but even whole groups of symptoms may be absent, so, in many forms of chronic disease, some of the characteristic marks will be occasionally wanting. There is much variety in the forms, intensity, complexion, and duration of chronic diseases, and particularly with regard to these which arise from animal poisons. Scarlatina, typhus, measles, and small-pox produce very different impressions on different constitutions—operating on some mildly and favourably, on others with extreme intensity. The same variety is seen in the constitutional symptoms produced by syphilis—in some they are slight and chronic, in others acute and violent. In fact, syphilis is so variable a disease, that every reflecting and experienced observer will be led to the conclusion that it must require a mixed and varied treatment, and that its treatment cannot be based on any general code of laws as laid down by mercurialists or non-mercurialists. By acting in this way, you will avoid both extremes, and pursue a wiser and a better course.

The following observations, with which I have been favoured by Dr. Tuohill, are worthy of your careful attention. They refer to the occurrence of phagedænic ulceration, and its treatment with and without mercury. He also furnished me with the particulars of two highly illustrative cases. In one case the disease had lasted for nearly three years, and eventually yielded to the external application of belladonna, combined with the internal use of creosote. In the second, mercury succeeded in the end, though at an early stage of the illness it proved an utter failure.

"Whether," says he, "that peculiar form of the venereal disease, commonly called 'the Phagedænic,' be the result of a distinct morbid poison, or a mere modification of what we more commonly meet in the course of practice, there can be no doubt that it is both a very formidable and a very unmanageable affection. This observation applies equally to the constitutional as well as to the local symptoms, in whatever relation the one may be supposed to stand towards the other. Though much difference of opinion may appear to exist respecting its precise nature, very little can be discovered in the consideration of those principles of treatment that are deemed fittest for adoption. All men of experience are agreed on the necessity of checking the ulcerative process, and fortifying, or at least supporting, the bodily health—indications which it is usual to attempt accomplishing by those external applications comprehended under the class of sedatives, stimulants, escharotics, and (save in the existence of vascular excitement of the system generally) the internal use of sarsaparilla, nitric acid, the various preparations of iodine, bark, iron, &c. with such directions as to climate, diet, and regimen as circumstances may demand. The signal indifference which phagedænic ulceration frequently exhibits to the influence of so many and such valuable remedial means, would go far in showing either that they are badly adapted towards the promotion of a cure, or that the disease is of such a nature that *time* must constitute an

essential element for its removal out of the system. The latter idea may be sustainable, whether we conceive that in the long run the resources of the constitution alone have the power of neutralizing the innate virulence of the disease, or that, after running its natural course, it becomes so mild as to enter on or approach to a spontaneous cure, requiring but little if any assistance from mercury. Whatever reputation mercury may have deserved in other forms of the venereal disease, in this at least it can lay claim to little. It is not its negative so much as its positive powers that disentitle it to the character of a remedial agent. The serious mischief which even a moderate use of the remedy so frequently entails, both on the constitution and on the local symptoms, would seem to justify its rejection altogether. Still, strange though it may appear, there are occasions where its beneficial effects have been most surprising, that is, so far as the accomplishment of a perfect and permanent cure, under circumstances otherwise hopeless, would warrant the expression. It is a matter of much regret, however, that we have no systematic arrangement or compilation of such cases—no faithful record of the precise circumstances under which mercury has proved so successful when all other means failed. The statements of medical men on this head are vague, general, and even contradictory. No special rules, as a guide to the practitioner in any given case, are laid down. Some are of opinion that the most seasonable period for a trial of mercury is when the constitution has rallied from the sympathetic effects of the local disease. Others look upon it in the light of a dangerous experiment—a kind of “*dernier ressort*”—admissible only in extreme cases, when the ulceration is rapidly spreading despite of all attempts to arrest its progress. Others, again, say that mercury may be given with advantage in small doses as an alterative, but they tell you to watch and wait till the ulcerative process shall have assumed a chronic form, resembling in features and complexion an indolent ulcer.”

The circumstances which induced Dr. Tuohill to have recourse again to mercury in the second case, and which, he thinks, also indicate the administration of mercury in phagedæna, were—a “change in the configuration of the ulcer from that of the ordinary crescentic to somewhat of an oblong shape; the want of distinction into convex and concave edges, and the absence of angular sharpness at either extremity; more consistency in the discharge, with a tendency to scab; the absence of fissures or callous granulations on the surface, and the complete disappearance of that peculiar granular hardness and lividity which were all along observable close to the convex margin of the ulcer.”

There is another point to which I shall direct your attention before I conclude. It is of great importance, in the treatment of venereal affections, to bear in mind that there are other poisons capable of producing an eruption similar to the syphilitic. In a previous lecture I endeavoured to show that, in some deranged states of the constitution, the human body is capable of generating an animal poison within itself, one of the characters of which is a more or less general cutaneous eruption. I have also shown, that deranged local action of a part of the body may be followed by inflammation, and the formation of matter capable of infecting the whole constitution. I have more than once, while going round the wards, been struck with the appearance of a sore of this description, and, on stripping the patient, found some of Mr. Colles’ pustules on the skin.

Some time ago a young man came into this hospital with gonorrhœa and phymosis; he was unable to draw back the prepuce, and the consequence

was, that the extensively ulcerated glans lay constantly bathed in gonorrhœal matter. Shortly after admission his skin became covered with an extensive papular or papulo-pustular eruption, which was looked upon by many as true venereal. He also became emaciated, and sore throat, very closely resembling syphilitic sore throat, made its appearance. The prepuce having been divided, he was treated with small doses of arsenic, mild nutritious diet, rest, and lotions of sulphate of zinc, and recovered completely.

A case still more curious occurred some time since. A gentleman, one of the pupils, cut his finger while dissecting. The wound was followed some time after by a suppurating tumour resembling a whitlow, which lasted for a long time, and finally generated a poison which produced sore throat and a cutaneous eruption; the latter of such an obstinate character that, after trying many remedies, he was obliged to have recourse to mercury. These facts, coupled with others of a similar tendency, show that venereal symptoms present a considerable variety as to their number, order, form, duration, and curability by mercury; consequently, it often becomes a matter of difficulty to distinguish the true nature of the disease, and separate it from other influences by which it may be modified. Hence, too, the caution with which we should proceed to subject a patient to a course of mercury.

One word now with respect to the treatment of chancres. I think it is a matter of the utmost importance to the medical man, as well as to the patient, that chancres should be seen and treated in the very commencement, that is, from two to four or six days after their appearance. Like the effects of many animal poisons, they are at first merely a local disease, and seldom affect the constitution until they have been for some time in existence. In the beginning they produce local irritation, but if neglected may give rise to constitutional affection. Hence the importance of being treated from the commencement; and to this circumstance I attribute the chief part of the success that attended Dr. Roe's practice, and the rare occurrence of secondary symptoms among the men intrusted to his care. I feel convinced that chancre, if seen shortly after its appearance, may, in eight cases out of ten, be treated safely and successfully without a single grain of mercury.

There are very few animal poisons which may not be arrested and destroyed at the point of inoculation if treated properly. I feel fully convinced that if you were to take a vaccine vesicle, and destroy it with nitrate of silver shortly after it has made its appearance, the virus would not affect the constitution, and that the child would not be protected from the danger of infection from small-pox. Burn the whole vesicle, it will heal up like any other part, and the child will not be safe from infection. You may smother the disease while it is merely local, and before the constitution is affected. Such, at least, appears to be the case with many animal poisons, and in particular with regard to the venereal.

As it is extremely desirable to arrest the local progress of chancre, many methods of accomplishing this object have been devised, among which none appears more certain or efficacious than the application of escharotics. If the disease be detected in its very early stage, before the *matrix* pimple has burst, or immediately after that event, the destruction of the local disease proves, in the great majority of cases, a perfect protection against constitutional sequelæ. When the chancreous ulceration has once commenced, and has been allowed to remain unchecked for one, or two, or three days, it is still most desirable to extirpate the local malady, and the result will generally be successful. The chance of protecting the constitution diminishes in proportion

as the operation is deferred ; but we want data to enable us to calculate at what period it ceases to be at all protective ; that period probably varies in different cases.

Be this as it may, it is an essential point in practice to get rid of the primary sore as speedily as possible ; how it is best to effect this object is a subject which requires a few remarks. The usual mode of treating small sores, whose diameter does not exceed that of a common stick of lunar caustic, is to apply the latter in substance, so as to produce a small eschar of the required size ; this method seldom fails, but is attended with the disadvantage that it often gives rise to sympathetic bubo, as the caustic is not unfrequently used with too little caution. I have accordingly given up the use of the solid caustic, except where the pimple or ulcer is very small, requiring merely a slight touch of the pointed pencil. Many practitioners lean too heavily on the pencil during its application, and keep it too long applied, and consequently the resulting inflammation and eschar are far more considerable than necessary, and are also more likely to produce bubo.

When the sore is so large that the diameter of its surface equals or nearly equals a line, it is already too extensive for the application of the solid caustic, without incurring the risk of a bubo. Under these circumstances, or, *a fortiori*, when the sore is still larger, I use the following method :—Provide yourself with a common-sized, nicely-pointed camel's-hair pencil, and a solution of lunar caustic, twenty grains to the ounce. Pour a drop or two on the cover of a book, or on the table, and, dipping the brush in a basin of water, cleanse the surface of the sore with it. Dry the sore then completely with a piece of lint, and, rinsing the brush, squeeze out the chief part of the water, and, pointing the brush, you may then dip the extreme point of it in the drop of caustic solution, so as to take up the smallest possible quantity of fluid, which you may then apply to the centre of the sore. When it has done acting, we may readily judge, by the appearance of the surface, whether enough has been applied, for the whole surface must be whitened ; but it is not, as is usually imagined, proper to burn out the edges. It may be necessary to dip the end of the brush in the solution, and apply it to the sore a second or even a third time, pausing to observe the effects of such application. By proceeding thus, we destroy the diseased surface, and do not produce any inflammation likely to give rise to bubo.

Some practitioners are much bolder, and use the solid caustic much more freely, desiring the patient to keep the part poulticed ; but their mode of proceeding is very objectionable. When the solution has been properly and cautiously applied, no dressing to the part is required, except a bit of lint or charpie. In some cases it is better to use as an escharotic the nitrate of copper, which may be employed in the form of concentrated solution, obtained by allowing the solid salt to deliquesce. Here the camel's-hair pencil and the same precautions are required.

After cauterizing the surface of a chancre, I have frequently applied a little of the fur or felt of a hat to the ulcer, and directed the patient not to remove it, if it adhered to the surface, which it will sometimes do, forming a scab that will not drop off until the sore is quite healed. Although we may not have recourse to applications decidedly escharotic (which is the surer way), yet I think the early and diligent use of stimulating lotions of lead, sulphate of copper, and sulphate of zinc washes, serves to a certain degree to protect the constitution. The fact is, that chancres so treated in the beginning, and thus altered, and caused to assume a healing process, cease to be as likely to

infect the system either of the individual himself, or of females with whom he may have connexion. A similar remark applies to gonorrhœa ; an astringent injection, used several times immediately before connexion, will, for the time, so alter the nature of the urethral secretion that it will cease to be infectious, although it may become so in half an hour or an hour afterwards.

LECTURE LXVI.

SYPHILIS CONCLUDED.—USE AND ABUSE OF MERCURY.—PTYALISM.—
SECONDARY SYMPTOMS.

I HAVE already stated that you may give mercury for syphilis in such an injudicious way, that all the efforts of the medicine are expended not on the disease, which it is meant to cure, but on the constitution of the patient, which it injures. This proposition, the truth of which has been long recognised, cannot be impressed too strongly or too clearly on your minds; for on accurately comprehending its scope and meaning will depend your success in the diagnosis and treatment of difficult cases. Nor is this peculiar to mercury when used in the venereal disease, for the same mineral may be so mismanaged in other diseases also, as to produce no beneficial effect, although it may be the very best remedy that can be administered in them, when judiciously prescribed. Thus, give calomel in considerable and repeated doses to a dysenteric patient, and allow him at the same time to use cold and acid drinks, and a mixed diet with vegetables, and you will render the disease worse instead of better, especially if the skin be freely exposed to alternations of temperature and cold air.

Again, when a violent pneumonia has hepatized a considerable portion of the lung, no remedy exceeds mercury in value; but it may nevertheless, and I regret to say not unfrequently is, given under such circumstances without the necessary precautions, and consequently rather injures than serves the sick man. The same observation applies to mercury when ordered in pleurisy or peritonitis, and is remarkably exemplified in arthritis and sciatica: in the latter disease, unless proper precautions as to temperature and rest are taken when giving calomel, you will be sure to salivate without obtaining any relief of suffering.

If opium be administered without tact, at wrong times, and in wrong doses, it often fails to procure sleep, and causes watchfulness; and so it is with all our remedies; they only produce a curative effect when properly exhibited. Certain states of the system, too, prevent the kind constitutional action of mercury. Suppuration of the liver renders it almost impossible to affect the mouth, as has been remarked by Annesley and Marshall. When the constitution is eminently scrofulous, mercury rapidly gives rise to a new group of bad symptoms, and fails to cure the venereal cachexy for which it was given.

The presence of the scorbutic diathesis—and it often may be associated with syphilis—renders the use of mercury unsafe and even injurious; even in healthy constitutions the favourable influence of mercury on the venereal symptoms may be interrupted or destroyed by strong mental emotions, excessive fatigue, bodily labour (hence the difficulty of getting mercury to act well on day-labourers and artisans, while employed), irregularity of diet, intemperance, &c. &c.

In all cases where any of these causes operate on the system, it is extremely

difficult to prevent the mercury from going astray (as it is termed), that is, injuring the constitution without serving the disease.

The following example proves the truth of this observation, and shows that a very great difference of opinion exists even amongst the most determined mercurialists, respecting the propriety of giving and withholding mercury in certain cases.

Some years ago I was called to see a young gentleman who had recently contracted a chancre. His constitution was perfectly good, and I proposed to cure the sore without mercury. To this he would not consent, and consequently I thought it right to call in the aid of the family medical attendant. He advised the use of mercury, and we prescribed five grains of blue pill three times a day, after a few days' preparation by means of confinement, rest, and low diet. By a mistake on the part of the patient's brother, he got five grains of calomel three times a day, instead of five grains of blue pill. A rapid improvement in the chancre took place, and on the fourth day we found the sore nearly healed, but the mouth much more affected than we had anticipated. He had then taken one drachm of calomel. That evening some young friends came to his room, and persuaded him to join them in a supper of oysters, punch, &c. In the night a most violent attack of mercurial cholera, with colic, vomiting, and purging, came on, and reduced him to a state of great debility.

The mistake as to the calomel was now discovered; and in consultation on the following day, his mouth being very sore, and the chancre spreading, it was agreed to use soothing measures, local and constitutional. At the end of a week we found the sore on the prepuce perfectly stationary; it seemed neither inclined to spread nor heal, while his mouth was still a little sore, and his breath fetid. My colleague now advised the resumption of mercury, which was accordingly used both internally and externally. In about ten days, during which time he scrupulously followed our directions, his system was again brought under the active influence of mercury, but still the sore was stationary. My colleague still wished to go on with the mercury; I dissented, and another consultant was called in. This gentleman, although a mercurialist, thought mercury here inapplicable, and we therefore left it off. I now touched the sore with the nitrate of copper, and, applying to its surface some felt of hat, a scab was formed, which adhered until the sore completely healed. Several years have elapsed, and the patient continues well.

Here, then, was a case where two mercurialists of great experience differed as to the expediency of giving mercury. As authorities they might be deemed equal, and yet, at a particular crisis, their opinions were diametrically opposed—an occurrence alone explicable on the grounds that the principles which guide mercurialists are not so precise and certain as they profess them to be. Indeed, on many occasions, I have found the greatest discrepancy of opinion between mercurialists as to the length of time during which mercury ought to be continued after it had caused a primary sore to heal; in the same case one practitioner advising a mercurial course twice as long as that recommended by another. Occurrences such as these demonstrate that much still remains to be done in this department of medical science, and such errors should teach us all—for we all make them—the necessity of acknowledging that, as yet, our opinions upon this subject are based upon no very firm grounds; and that consequently we should be tolerant of the opinions of others when they differ from us either in theory or practice. Toleration such as I have recommended is but too rare, and many seem incapable of

arguing or lecturing calmly and philosophically on the subject of the treatment of venereal.

Now, in the case above related, it appears to me that the mercurialists forgot some of the rules laid down by the advocates of mercury. Let us reconsider it for a moment: a venereal sore is rapidly healing under the influence of fifteen grains of calomel daily; had a proper diet been observed, another day would have completely healed the sore, but unluckily the patient commits a gross indiscretion of diet, and suddenly after that the sore spreads beyond its original dimensions, and continues obstinately to refuse to heal again, in spite of the patient's ill-advised perseverance in the further use of mercury. Under these or similar circumstances, the rule laid down by Mathias becomes applicable, viz., that when a sore becomes stationary (having been previously healing), or gets worse under the use of mercury, it is injurious to exhibit it any longer; it must be laid aside until those causes which deranged the constitution and impeded the proper action of the mercury have ceased to exist. But to prove still further that the most strenuous supporters of the mercurial system are liable to errors—to grievous errors—I shall give you the following case, on the accuracy of the particulars of which you may implicitly rely. The practitioner who conducted the treatment is considered to be a most skilful mercurialist, and most experienced in the management of syphilis. When the rules that should guide us in the exhibition of mercury prove so fallacious in such hands, how much more likely are they to fail with the young and inexperienced!

Mr. —, a strong, healthy young man, got a small pimple and sore on the penis after connexion, 25th November, 1836. He consulted a medical friend on the very day the pimple came out: he was assured it was not venereal, and was desired to return on the fifth day; then, also, the same opinion was repeated. Suspicious of its accuracy, he went to another practitioner, who put him on alterative doses of mercury; Plummer's pill was continued for ten days without any soreness of mouth; it was then discontinued, as the primary symptoms had healed. He remained quite well until February, 1837, in the middle of which month three or four large tubercular pimples slowly formed and suppurated on the scalp, neck, and face. His general health, however, appeared quite good. On the 2nd of March, 1837, his throat felt a little sore, and he began to take sarsaparilla decoction; otherwise his health continued good. On the 16th of March, however, a copper-coloured eruption, consisting of blotches variously sized and very numerous came out on the body and limbs. The eruption was unattended with fever.

He now consulted a third practitioner, who ordered him to rub in ʒss. of strong mercurial ointment twice daily. His mouth became very sore on the fifth day, when the rubbings were discontinued for a few days, but were then resumed and continued for seven weeks longer, during which time he confined himself to his room, and was very careful as to his diet. On the 11th of May, the frictions were discontinued, as Mr. — pronounced him cured, and safe from all danger of relapse. Observe that his mouth had been decidedly affected all this time; profuse salivation had not been maintained, but his gums were tender, and a slight salivation which arose on the fifth day had subsided.

The patient took great care of his health during the summer and autumn. He continued quite well until the 9th of September, when he got an ulcer in his throat. He again applied to Mr. —, who at first insisted (in self-defence, no doubt) that the sore throat must have been occasioned by new in-

fection. This the patient truly denied ; on examining the ulcer, Mr. — asserted that it arose from the original syphilitic infection, and he immediately put him on the daily use of a quarter of a grain of corrosive sublimate. He touched the ulcer several times with nitrate of silver in solution ; the throat got well on the seventh day, but by way of securing the constitution the quarter-grain daily dose of corrosive sublimate was continued.

On the 1st of January, 1838, another ulcer formed in the throat ! Mr. — now increased the corrosive sublimate to half-a grain daily, touched the ulcers several days in succession, twice daily, with butter of antimony ; after some days only once daily.

On the 10th of January the ulcer was healed. The use of the concentrated syrup of sarsaparilla was added, and the half grain of corrosive sublimate was continued until Friday, 2d March.

I need scarcely record that he was then in an extremely debilitated state, for the length of time he had been taking corrosive sublimate had been enough to impair the power of his stomach, so that for two months he had lost all appetite, and he was likewise slightly jaundiced. By the way, when mercury has been used by a patient to excess, jaundice is by no means an uncommon consequence—a fact we had often occasion to verify in the Lock Hospital twenty years ago.

The above case is instructive likewise, proving, as it does, that the same venereal poison in the same constitution may give rise to cutaneous affections of different species, for it here at first produced tubercular pustules, and at a subsequent period copper-coloured blotches.

When this patient was placed under my care, I looked on him as a victim to a plan of treatment injudiciously persevered in for months after mercury was no longer necessary. Accordingly I discontinued that mineral altogether, and the patient completely recovered. It is difficult to imagine what train of reasoning could have misled the practitioner in this case. But to return to the causes which impede or prevent the beneficial action of mercury.

Every excess—everything, in fact, which injures the health of body or mind—will have a tendency to counteract the beneficial effects of mercury on the disease. I think much mischief has been done by the well-known assertion of John Hunter, that he could not see what harm a good dinner and a bottle of wine would do to a man taking mercury for chancre. I would not advise you to undertake to administer mercury in venereal cases unless the patients are willing to submit to your directions, be careful in matters of diet, avoid intemperance, and confine themselves to bed, or at least to their rooms.

It is the subjection to strict regimen, quietude, and confinement which seems to act so favourably in the case of soldiers. They are confined to hospital, obliged to keep their beds or rooms, deprived of all dietetic stimulants, and removed from all causes of mental emotion, and hence it is that their chancres heal so rapidly. Mercury will seldom do much good unless taken under proper regulations. It will affect the constitution variously, but in general injuriously. I have already mentioned one case in which it acted injuriously, in consequence of indulgence ; allow me to give another case of the kind arising from a different class of causes. A young gentleman at college, who was under my care for chancre, was taking mercury for some time during the summer season. He had taken some blue pill with benefit, and thinking if one or two pills were good, a large number would be better, he took them much oftener than he was ordered.

An election took place at the college; he went to see it, became actively engaged in it, and continued so until a late hour in the afternoon. The weather happened to be extremely warm, so as to oblige him to change his linen three times during the day; but the excitement produced by the election was such that he forgot the condition he was in, exposed himself to a vast deal of fatigue, and remained fasting the whole day. In the evening he went home, and took a large glass of wine. In the course of a few minutes his head was violently affected, he became quite delirious, and continued alarmingly so for twelve or fourteen hours. Here you perceive the mercury affected the head, producing violent delirium. In other cases it will give rise to coma. In fact, it would be difficult to enumerate the various modes in which it may act injuriously when administered without caution, or when the patient is exposed to disturbing influences during a mercurial course.

You will recollect that, some time ago, in speaking of double or complex diseases, I brought forward several facts in support of the hypothesis that persons may labour under several diseases at the same time, all of which may combine to form an impaired state of the general system. In confirmation of this assertion, it appears that mercury may be employed for the treatment of syphilis, so as not only to leave the disease untouched, but also to superinduce mercurial cachexy, and even scrofula, and in this state you may have eruptions of various kinds. This is one of the worst forms of complex disease that comes under the notice of the practical physician. It was this form of disease which exhibited so many melancholy spectacles in the Lock Hospital some years ago; patients were seen labouring under all the horrible symptoms which combined syphilitic, scrofulous, and mercurial cachexies—the glands, skin, throat, bones, mucous, synovial, and fibrous tissues were all simultaneously affected; in fact, almost every tissue in the body was more or less engaged, and the patients died terrible examples of the frightful ravages of complicated disease.

In endeavouring, therefore, to analyse the nature and character of syphilis, you must always hold one great object in view, viz., to ascertain as closely as possible the order of the symptoms. Let us, for example, take the case of the woman in the chronic ward who is at present labouring under nodes. The first object here is to inquire whether they are syphilitic or mercurial; and with this view it will be necessary to obtain an accurate history of her case—to ascertain the order of symptoms—how long and in what manner she used mercury—what relief she has obtained—and whether the symptoms of relapse have come on slowly and gradually, or rapidly and at once.

If a person labouring under a certain class of symptoms, primary or secondary, has used mercury until his mouth has been affected; and if, when he has reason to think himself cured, his mouth being still tender, or having been so lately; if such a person after exposure to cold gets a violent attack of pains, followed by periostitis, we may conclude that he has taken a sufficient quantity of mercury to cure his syphilis, and that his complaint is mercurial periostitis; for here you have a train of symptoms not referable to the original cause. This is a very common case, and you will see numerous instances of it in labourers, and persons who are exposed to atmospheric vicissitudes while taking mercury. You will find, on inquiry, that after they have been cured of the venereal symptoms, they have exposed themselves to cold while still under the influence of mercury, and have shortly afterwards been attacked with a new train of symptoms. In most cases the chances are that this sudden supervention of disease is not the effect of syphilis, but of mercury.

An accurate analysis of the history of the case, and a careful observation of the new phenomena, are then the only guides we have to enable us to arrive at a just conclusion.

I stated in my last lecture that the mere fact of a considerable time having elapsed since the patient took mercury is no proof that the symptoms are not mercurial. I have over and over again met with cases of periostitis in persons who had been two, four, six, and even eight years without taking mercury. I was called the other day to see a lady whose mouth was sore, and her breath fetid; in fact, who presented all the phenomena observed in cases of mercurial salivation; and yet it is now several years since she took mercury by the advice of an eminent Dublin physician. Still more recently I have witnessed the recurrence of mercurial pyalism after two years in a gentleman who was salivated in the first instance by myself, and who had not in the interim taken a single grain of any preparation of mercury, not even an antibilious pill.

Now if so much time could have passed by, and yet one of the immediate effects of mercury be present, it is not improbable that some of its remote effects should appear after a lapse of time in which we would suppose that the mercury had been completely removed from the system. Many facts, however, can be adduced to show that some constitutions, when thoroughly affected by mercury, are apt to retain it for a very considerable time, and hence the practical physician is led to the reflection, that it should be used only in cases of necessity, and with all due discretion. Thus, in treating rheumatism, if you can cure by bleeding, leeching, tartar emetic, Dover's powder, and colchicum, you should not have recourse to mercury. The same observation will apply to the treatment of pneumonia, hepatitis, and many other forms of inflammation.

While speaking of pyalism, I wish to mention the case of a middle-aged woman of delicate appearance, who applied to me for advice on the 26th of December last. She had laboured under a profuse and long-continued leucorrhœa, which ceased rather suddenly in the beginning of September, and was followed by a slight degree of anasarca. This disappeared under a course of diuretic and purgative medicines; but she remained in a debilitated state, and experienced much distress from irritability of stomach, and finally from obstinate retching. In October this symptom also suddenly subsided, and was succeeded by a remarkable and profuse salivation, which continued unabated notwithstanding the use of various purgatives, tonic and astringent medicines, gargles, &c.

In twenty-four hours she spits more than a pint and a half of fluid, consisting of a whitish, viscid mucus, secreted by the mucous membrane of the fauces and back of the pharynx, from whence it is thrown into the mouth by a *hawking*, renewed every two or three minutes, with scarcely an interruption either during the night or day, and rendering the patient truly miserable from want of sleep. The throat and fauces are pale, and their soft parts extremely flabby and relaxed; although there is a constant irritation in the throat, in consequence of the presence of an unnatural quantity of mucus, yet no soreness is felt, neither do the parts appear inflamed. The salivary glands are not concerned in the disease, and do not secrete more than the usual quantity of fluid. Her appetite is very bad, her skin dry, and she has a haggard, emaciated countenance.

The well-known good effects of opium in several diseases of increased secretion, diabetes, diarrhœa, and certain forms of dropsy, suggested to me the trial of this medicine in the apparently almost hopeless case I have related, and

I accordingly ordered the patient one grain of opium every fourth hour. On the following day she returned to inform me that she had slept during the whole night, and on awaking had no return of the spitting. Her joy was great, and she and her friends considered the effect of the pills, in thus suddenly stopping the spitting, as most extraordinary; and I must confess that my surprise was almost equal to theirs. She then told me that several medical students who lived in her house, and who had witnessed the previous violence and obstinacy of her complaint, had been so much struck by its sudden cessation under the influence of the pills, that she was commissioned by them to inquire what I ordered. I mention this circumstance to show how very remarkable was the benefit she received from the opium.

The pills were continued for some days, when the quantity of opium was augmented on account of some recurrence of the spitting; unfortunately they induced constipation of bowels, and consequently she has been frequently obliged to leave them off; but she is, on the whole, much improved in health; and although she is still subject to the disease, its severity is comparatively trifling, and it uniformly disappears almost entirely when she has recourse to the use of mercury.

We sometimes meet with secondary symptoms concerning which we find a difficulty in deciding as to whether their origin is syphilitic or mercurial; of this we have now an example in the chronic ward. A man has been admitted with a peculiar ulceration affecting the fore-arm. I scarcely know what to call his disease; but though I am not able to give it a proper appellation, I think I can describe it with sufficient accuracy, and give you some practical hints respecting its mode of cure. You perceive, in the first place, that this man is much emaciated; you next find that he has not had syphilis for the last thirteen years; but that, two years ago, he was salivated in Stevens' Hospital for liver disease. After the use of mercury he never regained his former state of health; a cachectic condition of body ensued, and he remained wasted in flesh and reduced in strength. In this state of the system the present disease appeared. He first noticed one or two tumours under the skin, and you may have observed two of them at present on his body. One, two, or three of these appear at a time, increase in size, arrive at maturity, then begin to decline, and are succeeded by a new set.

They go through the following stages:—at first the tumour is small and circumscribed: it lies under the skin, without any attachment to it or the subjacent parts; you can roll the skin over it, and it over the parts beneath; and it appears to be a solid substance, perfectly insulated, and having no attachments either above or below. In this state it goes on until it grows to the size of a walnut or small apple. It now no longer preserves the rounded form which it exhibited before; the pressure of the surrounding parts, and particularly the contiguity of bone or fascia, causes it, as its size increases, to become flattened and irregular on its surface. This occurrence is followed by a change in its structure. It begins to soften in its centre, and a deposition of fluid takes place; the solid part is diminished while the fluid increases, and the whole substance is gradually converted into a mass of puriform fluid. In the mean time the integuments over this tumour become inflamed, contract an adhesion to its surface, and finally break.

The discharge of the confined matter is not here, as in case of abscess, succeeded by the healing process; the tumour is removed by ulceration, but it leaves behind an ulcer with an irritable surface, discharging an ill-condi-

tioned puriform fluid, and covered with fungous granulations. The irritability of the surface of this ulcer is very considerable, but the surrounding integuments are very little inflamed; the skin presents very little redness, but the edges of the sore are undermined. It goes on until it has destroyed entirely the original texture of the tumour; and, when this is accomplished, it does not seem inclined to spread or travel to the neighbouring parts; the work of destruction was confined to the place where the tumour has been, and to the investing integuments and tissues. It then begins to heal in one part, and after some time disappears, leaving behind it a remarkable cicatrix.

When the healing process is set up, while the lump is small, the cicatrix is circular, and the skin smooth. But when it has assumed a larger size, the cicatrix becomes irregular and puckered on its surface; and the new cuticle which is generated presents an irregularity in its colour, having scattered over it thin whitish portions, intermixed with vascular skin: and this is characteristic of the disease. In what particular is this disease remarkable? First, in the length of time which it takes in arriving at its stage of maturity. Sometimes this extends to eight, in other cases to twelve, and you will find instances in which fifteen months will elapse from the time of its commencement until suppuration is established. It is also remarkable for the great pain which, after some time, is felt in the tumour, a circumstance which depends on a process going on in the tumour itself, and not in the surrounding integuments; for if you squeeze one of these lumps, you will find it very painful, though at the same time the integuments over it are neither tender nor inflamed.

The last thing deserving of remark in this disease is, as has been noticed already, the absence of cutaneous inflammation. Now, with regard to the situation in which these lumps are commonly observed, if you examine this man, you will find an open ulcer on the outside of the forearm close to the ulna. You may also perceive that he has several scars on his extremities and body, all in the vicinity of bone. He has some along the back, close to the spinous processes; one on the shoulder near the scapula; others on the lower extremities, still near bone. He has one lump, however, on the outside of the thigh, not exactly contiguous to bone, but lying close to the fascia lata. The situation of this last lump would seem to point out its connexion with bone. I do not, however, look upon it as a node of the fascia, because it can be rolled about over the fascia. It is not originally connected with fascia, though it may, towards its termination, contract an adhesion to it. You are, therefore, to look on it as an affection neither of bone nor of fascia.

The disease is to be recognised by its history and insulated development in the subcutaneous areolar tissue; by its beginning as a small, solid tumour, which after some time becomes painful, and which owes its size to morbid growth rather than inflammation; by the length of time which takes place before it begins to suppurate; and by the cicatrix which it leaves behind. Now, with respect to the nature of this collection of matter, would you call it chronic abscess? No; there are some characters in which it differs from chronic abscess, though it appears to have some relations to chronic or serofulous collections of matter. Thus you will find persons labouring under the serofulous diathesis, or of a cachectic habit of body, get an abscess which may continue for some months, or even a year, without any redness of the integuments, increased heat, or even pain: in fact, without any more certain indication of the gradual accumulation of matter than that which this swelling affords. It is to tumours of this kind that the name of cold boil has been popu-

larly given. This differs from the former disease in the absence of previous deposition, and in the formation, from the beginning, of puriform fluid ; while the lumps in question begin in a solid state, increase, still solid, and thus exhibit characters different from chronic abscess, though, in the length of time that they take in arriving at maturity, and in giving rise to the formation of matter, they bear some resemblance to it.

They differ also in their mode of healing, and in the cicatrix which remains. Again, if you look to the state of constitution which we meet with in this disease, and observe what this man's habit of body is, you will find that it occurs in that cachectic state which frequently follows the use of mercury. It arises in a habit of body which mercurialization has depraved, and it is never known except in persons who have been using mercury. If, after two or three months, you cut into one of these tumours, you give no vent to matter, but your incision is followed by a copious flow of blood. These tumours are sometimes so painful as to require an incision, and this is occasionally attended with benefit. I do not know whether it is that the incision checks their growth, or that it produces a more rapid development of the ulcerative process. It is possible that we may be able to remove this disease entirely by excision, and that, when you discover one of these lumps in its first stage, before it has established any connexion with the neighbouring parts, you may cut it out with advantage. It appears to be perfectly insulated, the skin over it is perfectly sound and free from inflammation, and I can see no objection to excision.

Now, how would you treat this man? If you look into books, you will find the information they afford on this disease very scanty. Bear in mind the peculiar state of constitution produced in him by the use of mercury. On this consideration your treatment must depend ; put your patient on a light and mild diet, and, if possible, send him to the country ; the jusculum sarsaparillæ of the old authors will do him a great deal of service, and should be prescribed ; nitric acid also exerts an influence which is almost specific in curing this disease, and may be given in large doses. Other medicines, such as arsenic, which I have employed in this man's case, and bark, will prove serviceable and facilitate the cure. You may have recourse to another thing : this I mention on the authority of Mr. Kirby, who has given me a great deal of information on this subject, and that is, when you have strengthened your patient's constitution by means of the above-mentioned, you may give mercury in mild alterative doses, and here you will derive very great benefit from De Velno's vegetable syrup. So much for constitutional treatment.

I trust, from the description I have given, that you all will be able to recognise the disease, and treat it properly. Recollect, you are not to give mercury until your patient's health begins to improve. With respect to the local treatment of the ulcers which appear towards the termination of the disease, your practice is simple and obvious. There is no necessity for leeching the surrounding integuments ; all you will have to attend to is the surface of the sore ; apply to this red precipitate in powder, or black wash, or carrot poultices, and you will considerably accelerate its cure. There is no use either in leeching or blistering over the lumps before they break. You may leech or blister over them as much as you like ; it will do no good ; they are insulated parts that will not be affected by this treatment, and will continue to grow until they have attained a proper size.

We have also other similar diseases attendant on a broken state of the constitution, as rupia—a vesicular, and ecthyma—a pustular disease, in which, when the sores break, they give rise to ulcers with fungous granulations and

unhealthy surfaces, and; after they heal up, present a cicatrix somewhat resembling that observed in this disease. There are other constitutional diseases also, such as yaws, which are attended with a peculiar affection of the skin. So that you perceive we have some persistent diseased states of the constitution, giving rise to chronic topical affections, which bear some analogy to the exanthemata; for, as in scarlatina we have fever with scarlet eruption, so in these instances we have a kind of slow fever giving rise to ecthyma, rupia, yaws, &c.

In a letter which I have received from Sir James Macgrigor, he informs me that mercury is very little used now in the army. There is no regiment or hospital from which it is wholly excluded; but it is administered with discretion, and only when the necessity of the case plainly requires its employment. I may observe, *en passant*, that you will find some excellent observations on mercurial remedies in the lectures of Dr. Sigmond, published in the *Lancet*.

There is one remark I wish to make with respect to mercurials, namely, that an undue preference is shown for some preparations to the exclusion of others. I think, for instance, that calomel is too often employed where other preparations would answer better, and that corrosive sublimate is too much neglected. I have witnessed its superiority to other preparations of mercury in many instances; and some practitioners prefer it in the treatment of many forms of secondary syphilis. Thus, in a patient labouring under secondary symptoms, after the fever is over, and the eruption begins to decline, corrosive sublimate may be used with great advantage. One-eighth of a grain may be given twice a-day, and every night the patient may rub in from a scruple to half-a-drachm of mercurial ointment. Under this treatment the disease is cured much more rapidly and effectually than if calomel, or blue pill, or mercurial inunction alone had been employed.

In throwing out these observations on the treatment of venereal, my object has not been to enter into specialities, but simply to furnish a few general rules for the guidance of persons engaged, or about to be engaged, in the treatment of one of the most important diseases in the whole nosology. You will find any additional information you want in books. An immense quantity of valuable information has been collected by the army surgeons; and, thanks to the indefatigable industry of Sir James Macgrigor, the profession and the public are now able to avail themselves of these valuable contributions to medical science. You will also find much valuable matter in the *Medico-Chirurgical Review*, which contains an able analysis of Mr. Colles' work on Venereal.

Ricord's work has been very ably reviewed in the *Edinburgh Medical and Surgical Journal* for July, 1838; and to that periodical I must refer you for details, merely remarking that no modern author has done more than Ricord, by contributing materials calculated to decide many important controverted questions.

Fricke remarks that, although affections of the bone and periosteum are a very frequent effect of the syphilitic poison *per se*, yet caries and destruction of the bone are seldom or never observed except when mercury has been administered. This observation is, generally speaking, correct; but, nevertheless, it requires some limitation; for I have seen examples of caries of bone in the venereal disease where not a grain of mercury has been taken. In the cases I allude to, the scrofulous diathesis was pre-eminently marked, and the affection of the bones, which the venereal poison exhibited, immediately dege-

nerated from its usual course, and assumed all the characters of scrofulous disease. In both instances, destruction of the nasal bones, and consequent sinking of the bridge of the nose, occurred—a deformity occasionally of simple scrofulous origin.

From an analysis of Pirogoff's *Surgical Annals*, published in Oppenheim's Journal for September, 1838, it appears that mercury is very seldom employed at Dorpat for the cure of venereal, and yet Dorpat is remarkable for the number and severity of syphilitic cases—a circumstance partly attributable to the absence of medical surveillance over the women of the town, and partly to the apathy, carelessness, and filth of the lower orders.

Pirogoff's general mode of treatment is non-mercurial; and he maintains that relapses are less frequent and less violent than when mercury is employed as the general means of cure. It is worthy of remark that a peculiar consequence of phymosis, or its causes, is frequently observed at both Dorpat and St. Petersburg, and which consists in the transformation of the inner layer of the prepuce into firm cartilage. There is no remedy for this but circumcision. This change into cartilage is always produced by diseases which, producing phymosis, at the same time give rise to a long-continued irritation and inflammation of the inner surface of the foreskin, attended with an increased secretion from the latter. Under such circumstances, the surface of the glans and its covering prepuce pour forth secretions of an offensive nature, which find a very difficult vent, and are, besides, rendered more acrid by an occasional admixture of urine, and by the impossibility of thoroughly cleansing the parts.

Before concluding, I have but a few more observations to make on the treatment of syphilis. Since I first delivered lectures on this disease, I have made some experiments on the comparative value of lunar caustic and sulphate of copper in *healing* chancres; and I am fully convinced that for this purpose we should prefer the latter. The great utility of lunar caustic in destroying the surface of the sore, in the first instance, is unquestionable; but after this first application, I think we will succeed in rapidly healing the ulcer more effectually by sulphate of copper, which may be used either in substance or in solution of various strength, after the manner recommended for the nitrate-of-silver lotions. When the ulcer has assumed a chronic appearance, with thickened, elevated, and, as we frequently see, everted edges, I know of no escharotic more useful in levelling the edges and improving the surface of the sore, than the free application of this remedy in substance. I am also perfectly satisfied that the sulphate of copper produces much less irritation than the other, and that buboes more rarely follow its employment.

There is one point more to which I am very anxious to direct attention, as I am certain many errors are committed by a want of knowledge on the subject. I have frequently had under my care patients of a scrofulous constitution, affected with primary sores, which, for obvious reasons, were treated on the non-mercurial plan, and readily healed without bubo or any other bad symptom. Some of these patients were afterwards attacked with periostitis, produced by cold, wet, injury, or any other cause, and though they had never taken a grain of mercury, and were free from any other symptom resembling syphilis, have been pronounced to labour under secondaries by other practitioners to whom they have applied for advice. This view seemed in many instances extremely probable, from the fact that soon after the periostitis was established, nocturnal exacerbations, sweating, and emaciation rapidly ensued.

Such cases are by no means rare, and require the greatest discrimination; for if mercury be resorted to with the impression that the patient labours under secondary syphilis, the most alarming consequences are sure to follow. The periostitic pains may be relieved for a time, but they soon return; again mercury is had recourse to, and again the pains return; in the meantime the constitution of the patient rapidly gives way under the combination of struma and the uncalled for administration of mercury. I have seen but too many instances of what I now state, and therefore I am particularly anxious to direct attention to those cases, which, as far as I can discover, have not been spoken of by writers on syphilis, struma, or periostitis.

It may be asked, what are the distinguishing marks of these cases? I can only say that, in those which have come under my observation, the periostitis followed the appearance of the chancres at considerable distances of time—many months, or two, four, even six years intervening—it was unaccompanied by any form of eruption, and was not *immediately* attended with sweating, nocturnal exacerbation, or emaciation; there was no sore throat, or other unequivocal syphilitic symptom, circumstances which, when coupled with the fact that the sores on the penis were treated on the non-mercurial plan—a plan allowed on all sides *to interfere less with the order of succession, and the natural combinations or forms of grouping, of syphilitic symptoms*—these circumstances, I say, constitute the basis of a differential diagnosis, which, when followed by the line of treatment indicated, leads to the happiest results. In all such cases mercury is inadmissible, and our chief reliance must be placed on iodine in its different forms, sarsaparilla, nitric acid, tonics, iron, nourishing diet.

In fine, I have a few remarks to make with respect to hydriodate of potash, which I trust you will not consider superfluous. I have observed that this remedy will frequently cure periostitis and other affections when given in free doses, though the disease may have resisted its influence when given in small quantities. I am never dissuaded from trying it by the assurances of the patient or his medical attendant that the remedy has had a fair trial; in such instances I begin with the doses usually ordered, and increase the quantity daily, carrying it in some cases to *half a drachm* three times a day, a mode of administering this medicine I found extremely beneficial.

The following case is an excellent illustration of the efficacy of this method. Mr. M. had severe periostitis, after long-continued mercurial treatment of syphilis, and was much reduced by frequently-repeated salivations. In August, 1839, Mr. Carroll of Meath-street advised him to place himself under my care. From August to December, 1839, he took *sixteen drachms* of hydriodate of potash, in five-grain doses, gradually increased to ten grains three times a day. His general health improved, he grew stout, and appeared quite cured, but towards the end of January, 1840, he relapsed, and again took the same medicine with temporary relief. This happened several times, so that before December, 1840, he had consumed *thirty-three drachms* more. In that month he again relapsed, when he consulted Surgeon O'Ferrall, who advised a recurrence to the same remedy in much larger doses, and to be persevered in *until all periostitic swelling and every vestige of pain were removed*. He now took *half a drachm* three times a day, until *twenty drachms* were consumed. He took on the whole, from beginning to end, *eight ounces five drachms* of this medicine, and has been perfectly well ever since!

Hydriodate of potash does not appear to exercise the same powerful control over syphilis characterised by the copper-coloured eruption as other forms;

these cases are more advantageously treated with corrosive sublimate and sarsaparilla, and this opinion accords with the views of Mr. Carmichael, who limits the administration of mercury to this form of the secondary disease, and to the peculiar ulcer which according to his doctrine precedes it, namely, the Hunterian chancre. There are two classes of cases in which hydriodate of potash is more particularly serviceable. The one includes those instances where the symptoms have not been set astray, so to speak, by the frequent and injudicious employment of mercury—the other embraces those cases in which the periosteum, the bones, and the mucous membranes are extensively engaged: in the latter instance presenting ulcers of the nose, tonsils, pharynx, tongue, inside of cheeks and lips, usually associated with large and painful condylomata at the verge of the anus, and the mucous tubercles of the French writers, on the scrotum, inside of thighs, &c. In such forms of the disease, hydriodate of potash, either singly or in combination with sarsaparilla, is by far the best remedy we possess. We as yet want facts to determine accurately the comparative value of hydriodate of potash and corrosive sublimate, in those particular cases which indicate to every practitioner, whether he be a non-mercurialist or a mercurialist, the necessity of giving sarsaparilla, tonics, good diet, &c.

LECTURE LXVII.

PERIOSTITIS.

I SHALL to-day, gentlemen, proceed to make some remarks on the general pathology and treatment of periostitis. I regret to state that the articles on this subject in Cooper's Surgical Dictionary and other works are deficient in a practical point of view. It is a disease which has been known as long as syphilis; but its true pathological nature was not pointed out until Sir Philip Crampton described it in the first volume of the Dublin Hospital Reports. We have frequently heard tenderness of the skin with increase of size termed swelling or diseased growth of the bone; but you will find that, in most of these cases, the swelling and other symptoms are owing to the peculiar state of the periosteum alone. Periostitis is a disease of considerable importance, because its symptoms are produced by scrofula and other cachectic states of the constitution, as well as by the abuse of mercury and other remedies. You will have occasion to observe instances of this disease superinduced by cold, or by giving mercury under unfavourable circumstances, and in the latter case frequently confounded with syphilis. This is an important fact, and you should hold it in memory. Another great mistake is, confounding it with neuralgia; or, where it attacks the head, with hemicrania, because one side of the head only may be affected, and the pain may be increased at a stated hour, generally towards night. I have seen the carbonate of iron given in large doses by a medical gentleman of considerable eminence, to cure a pain in the side of the head which arose from inflammation of the periosteum. Another instance of a similar kind has lately come under my observation in private practice, and once I committed the same mistake myself.

Before I enter into the further consideration of this subject, I must state to you that an opinion was formerly entertained that membrane or periosteum was the repairer of bone, where its regeneration was necessary. But in this process the vessels of the bone itself are as much concerned, and membrane contributes nothing to the formation of bone, *except so far as its vessels are engaged*. The formation of callus in fractures, the development of healthy bone in necrosis, the organization of node and exostosis, depend not on any membrane, but on the vascular part of the periosteum, and on the vessels of the bone itself. It is true, however, that where other vascular channels are cut off, the periosteum will, to a certain degree, supply their place, thus becoming the sole means of establishing vascular communication. It is to Scarpa we chiefly owe our information on the true nature of the reparation of bone. You will find, on this subject, a great number of experiments detailed in Cooper's Surgical Dictionary.

With respect to the periosteum, it is, like other parts of the system, liable to inflammation; but you are not to suppose that its liability is greater than that of other tissues. This would contradict the arrangements of nature; for it is with this membrane she has clothed many parts of the body which lie

close to the surface, as the shins, head, ribs, elbow and other joints, which, beside the periosteum, have, for the most part, only a thin covering of integuments. You all know how frequently the periosteum is exposed to injury in the foot-ball matches of schools, and at our Irish fairs, and with how much impunity. I may observe here, that the term I shall employ in speaking of the affections of this membrane—periostitis—is a name introduced by Sir Philip Crampton. Now, according to the view which I have taken of the formation of bone, it will appear that the subjacent bone is often as much diseased as the periosteum, and, indeed, sometimes the disease commences in the bone, and afterwards extends to the periosteum. With this exception, the definition given by Sir Philip Crampton is good. I beg leave to mention, *en passant*, that Mr. Howship's papers on the Formation and Diseases of Bone are deserving of your perusal. He has examined and given delineations of the various structures of diseased bone; but I do not consider his account of the structure of bone to be sufficiently established to enable us to decide important pathological facts.

You will observe that, in inflammation of the periosteum, the peculiar texture of this membrane modifies the symptoms of the disease. The periosteum is fibrous, and, though not thick, is remarkably strong and unyielding, lacerated with difficulty, and does not accommodate itself except to that which it was intended by nature to cover; hence, if a part increases in size, the periosteum over it is stretched and tightened, and this is one of the principal causes of the severe pain usually felt. You are aware that the swelling which attends the common forms of inflammation of areolar substance, where the parts can extend themselves on every side, must be differently circumstanced from that which arises from abscess under fascia, or lying close to a bone, and that there must be a corresponding difference in the pain. You will find, in various surgical works, that, in periostitis, the pain is sometimes very great where very slight changes have taken place, and that little pain is felt in some cases where there is considerable alteration of structure.

It is a remarkable fact that, in many instances of periostitis, exactly corresponding parts of the bones of different extremities, on different sides of the mesial line, will be found simultaneously or successively attacked. Thus, if a certain spot on the bones of one fore-arm, or one acromion, or any other part of the scapula, be attacked by inflammation, similar appearances will manifest themselves in the other, either at the same time, or in a few days after. If it seizes on one clavicle, you soon observe it in the other. You will have occasion to treat this disease in perhaps most of the human bones, but particularly in the head, tibia, femur, sternum, and scapula. In the sternum it sometimes leads to carious destruction, forming a large hole in the bone, as happened in a young man formerly in this hospital; in his case, each stroke of the heart caused matter, mixed with air, to bubble out, presenting a very curious and frightful appearance.

Periostitis, occurring in the neighbourhood of joints, often spreads to the joint itself, giving rise to periostitic arthritis. Thus, from the tibia, it frequently spreads to the knee or ankle, and from the humerus or scapula to the shoulder joint. The sternal articulation of the clavicle is a favourite seat of periostitis. In the ribs it much more frequently attacks them in their anterior portion, not far from the sternum, or from their cartilages, and occasionally gives rise to costal caries, for which Cittadini has recommended a particular operation. I would recommend you to hold in memory that, when the disease affects the thigh-bone, it is almost invariably about the *junction*

of the middle and lower thirds, and generally on its anterior or inner surface; this is a practical observation which I have not seen noticed in any books. In the work of the late Mr. Colles on the Venereal Disease, he points out the many symptoms, generally supposed to characterize morbus coxæ, which attend this affection, and particularizes the diagnostic features of the two diseases. There is also, in this form of periostitis, one peculiarity that, besides the very great severity of the pain which attends it, we find that it yields with the greatest possible difficulty to medicine, and that the means of curing it are a desideratum we have still to discover.

The next species, most remarkable for its painful symptoms, and one which deserves to be explained more fully, is periostitis of the head. There are three subdivisions of this species. The first kind is very easily recognized, for you will find the affected spots sore, slightly swelled, and hardened, with marked tenderness on pressure, and the head-ache which accompanies them radiating from these spots as from so many centres. In the second form you will find the pain obscure and not confined to a certain spot, but the swelling and thickening of the scalp are evident, and give certain indications of the nature of the disease. You may also observe cases where the inflammation is diffused over one side of the cranium, and not fixed to a small distinct spot, and these are attended with severe pain. With respect to these varieties, you will not find much difficulty in ascertaining their nature; but there is another kind in which the diagnosis is much more obscure.

A patient, for instance, complains of severe headache, at first attended with intermissions, generally increased towards night, and accompanied by a sense of weight in the head; his eyes look watery and heavy, and lose their usual animation, and his spirits are depressed. Ask him in what part of his head he feels the pain, and he cannot tell you exactly. Sometimes he refers it to the forehead, sometimes to the side of his head. There is no point of the scalp in which you can detect any soreness or swelling. Matters go on in this way for some time, he begins to lose his rest, the intermissions become shorter and not so perfect, and the pain increases. During the day it is tolerable, but towards evening it is excruciating, and does not allow him to enjoy one hour's rest in the twenty-four. The largest doses of opium and other strong narcotics are useless. Rest in bed, stupes, cold lotions, narcotic liniments, even bleeding and leeches give but very small relief. After exerting all your ingenuity, you still have the mortification of finding that there is something wrong going on which eludes your skill.

On your first visit, from the appearance of the patient and the detail of his symptoms, you are led to suspect that the brain is the part diseased. You employ your antiphlogistic remedies, but find no improvement, and begin to doubt the correctness of the diagnosis. Moreover, in cases of this kind, where you find a tenderness in the integuments on close examination, and pain limited to one side of the head, there is occasionally a partial ptosis of one eyelid which creates alarm, and leads you to imagine that it is the brain itself which is affected. Ptosis, or falling down of the upper eyelid, is a very frequent symptom of cerebral disease; and, consequently, in determinations to the head in fever and other complaints, it is a bad sign when one eye, in consequence of some degree of ptosis, appears smaller than the other. There is certainly some degree of paralysis in this case, but it is only secondary, and not depending on the brain, but on the inflammation affecting the nerves themselves. I mention this, because it is not generally known or described, and because it is liable to excite alarm.

Now, why is this disease not easily recognized, or why is the bone so often devoid of tenderness to the touch? It is because the internal surface of the bone is the part first engaged, and the disease cannot become evident until after some time. After your usual treatment has been continued for a week or ten days with little improvement, a certain spot on the head will be found tender on pressure, and it is only then that the true nature of the case will appear. For this disease there is no cure but mercury and iodine. However useful depletion may be to prepare the system, nothing but these remedies in large doses will relieve the disease.

Give a scruple or half a drachm of calomel in the course of the day, and bring the system thoroughly under its influence. You will do well to combine different preparations of this remedy, as there are some constitutions which are more quickly affected by one preparation than by another, and then combination is always valuable. It is very remarkable that, though you have made the mouth sore, relief is not immediately obtained; you must go on and affect the system very decidedly, and when you have accomplished this, the pain and other symptoms will disappear. Of this we have an instance in the chronic ward. A periostitic patient had his mouth sensibly affected for several days, but with very little relief of pain. What did we do? We doubled the dose of calomel, and in a few days the pains had altogether disappeared.

You may have perceived analogous instances in cases of iritis, where the disease begins to diminish on the mouth being made sore, and even may appear to have entirely subsided. Encouraged by this, the practitioner decreases the dose of mercury; the mouth continues sore, but in a few days, although the small doses of calomel are continued, and although the mouth is still affected, the characteristic symptoms of iritis again recur, and go on increasing, if you continue to trust to the diminished doses of calomel. Under such circumstances a beginner might be discouraged and lose confidence in mercury, because the iritis had returned while the mouth was still sore, and before the remedy was discontinued. What is to be done? Instantly resume the large doses of calomel with a more decided mercurial action, and the iritis disappears. In the mercurial treatment of periostitis, arthritis, peritonitis, and pleurisy, a similar method of managing this remedy is occasionally required, and it is of vital importance that you should know this.

With respect to that species of periostitis which affects the femur, you must recollect that this bone lies so deep that it is sometimes not very easy to detect the periostitic swelling. Generally it is the part of the bone before mentioned that is attacked, and in the cases I have seen, the inflammation was on the inner side of the bone. From its situation, this species is very apt to be mistaken for various diseases, particularly neuralgia, sciatica, abscess in the shaft of the bone, morbus coxæ, &c. After some time a certain degree of tumefaction may be distinctly felt, but not until the patient has suffered excruciating agony and distressing want of sleep; indeed, in one case, the poor sufferer scarcely slept at all for twenty nights in succession. One of these cases was relieved by corrosive sublimate, but two others were not in the least improved by mercury pushed to the utmost. Narcotics totally failed, but a seton over the affected part seemed to do some good. But, to return to periostitis affecting the cranium; it occasionally assumes the chronic form, attacking both surfaces of the bone in a slow, insidious manner. The following instructive example of this affection fell lately under my observation.

A young man of good constitution, previously healthy, became subject to epilepsy very frequent and violent. Some time previously he had complained of headache, chiefly referred to the left side of his forehead. The convulsions on the right side were stronger than on the left. He continued in this state for many months, and became incapable of pursuing his usual occupation. The convulsions became more frequent, recurring at different times of the day; and some of his medical friends thought they observed a prominence in the frontal part of the skull, and were anxious to have him trephined in that spot. On looking at him in front, you could not at once perceive any unnatural elevation in the forehead; but, by examining it from above downwards, according to the norma verticalis of Blumenbach, there was a perceptible swelling, as if the whole bone had been pushed forward in that situation.

After seven months' illness, he was seen by Dr. Colles, Sir Philip Crampton, and myself. We objected to his friends' proposal to trephine, because we could not be certain that there was any projecting growth of bone pressing on the brain in this place, and because it had a certain degree of tenderness on pressure. We were afraid also that there was an intimate union between the internal periosteum and the dura mater, as well as between the latter and the surface of the brain; consequently there was danger that the operation might induce inflammation in all these parts. Considering it to be a case of internal periostitis, in which the inner table of the bone and corresponding part of the dura mater were affected, we agreed to try the effect of mercury. We employed frictions for this purpose, as the internal exhibition of mercury produced sickness and vomiting; and at the end of eight or ten days, when the mouth became affected, we had another consultation. We were told there was no improvement; the fits still continued; his friends exclaimed that mercury was useless, and called for the application of the trephine: we were almost in despair. On closer inquiry, however, we found that though the fits had displayed the same violence, there was some slight diminution in their frequency, and on this slender hope we urged the continuance of the same remedy. As soon as his system was completely affected, the disease began to decline perceptibly, and he became free from pain, and the convulsions ceased.

When the vertebræ become the seat of periostitis from syphilis, scrofula, or abuse of mercury, it will be generally found in the bodies of the vertebræ. When brought on by syphilis alone, I believe it seldom attacks the bodies, such cases chiefly arising from the abuse of mercury or scrofula. In persons of broken constitution, from combined venereal and improper mercurialization, it is not an uncommon occurrence to find the neck presenting the symptoms of subacute crick, or collum obstipatum, which, if treated in the common mode, the disease becomes confirmed; and of this I have seen an instance in a gentleman whose neck became permanently stiff for want of skill in his medical attendants. It will be obvious that inflammation of this kind, affecting the vertebræ, may be readily communicated to their ligaments and the adjoining tendons, and in this way produce the deformity. I have treated some such cases, and would turn your attention to it, because you will not find it mentioned in books. You will be able to know it by careful examination by pressure, and find that its cause was disease of the periosteum of one, two, or three of the vertebræ; and you will employ, in treating it, leeches, repeated blistering, and compound decoction of sarsaparilla, with hydriodate of potash. If this does not do, give mercury, and except the disease has continued too long, you will cure it.

Other vertebræ, as those of the back and loins, may become the seat of periostitis, and it may be mistaken in these cases for Pott's disease, or for Teale's spinal neuralgia, from which it is sometimes difficult to distinguish it. Periostitis sometimes attacks the sacrum and os coccygis, and is then peculiarly painful, as is now exemplified in the male ward. In females, I have been twice consulted within the last year for a pain in these same parts, which was at times excruciating, and always considerable; it was increased to an intolerable degree by sitting down, and hence they were obliged to avoid society. It appeared to be a variety of hysterical neuralgia, and yielded to nervous medicines combined with tonics, together with the local application of stupes, narcotic liniments, &c., &c. I know not whether authors have mentioned this peculiar neuralgia.

When periostitis attacks the sternum, it is very liable to be mistaken for disease of the chest. I remember a young gentleman, some time ago, who had a severe pain in his chest, which gave his father such alarm lest it might be consumption, that he brought him with him to London for the benefit of change of air and to have medical advice. On his way thither he caught a cold, and in this condition waited on a medical gentlemen, who prescribed medicines for him adapted for the cure of pulmonary disease. On his return to Dublin (his pain still continuing) I was called in to treat him for a complaint in the chest. On placing the stethoscope over the spot where he complained of pain, he winced, and, after a minute examination, I discovered that the disease was entirely confined to the periosteum. It is possible, however, that in such cases the disease may ultimately reach the chest, for the sternum is a very porous and spongy bone, and a complete perforation of its substance may be the result of periostitis long continued. Another way in which it may be confounded with rheumatism of the intercostal muscles, or pleurisy, is where periostitis attacks the ribs. This is a very common source of pain, tenderness, and stitch of the side.

There is a form of periostitis which extends from the bones of the foot to the plantar aponeurosis; it is found chiefly in labouring men; and the predisposition to it seems to arise from the use of the spade in digging. I do not know that this form has been mentioned by any author I am acquainted with. The following symptoms are generally present. The patient complains of excessive pain in the sole of the foot, extending into one or both malleoli whenever he attempts to lay the plantar surface flat on the ground, and in order to save himself, he walks either on the heel or outer edge of the affected foot, the toes of which are strongly contracted, so as to relieve the tense condition of the plantar fascia. The pain is much increased when pressure is made in the centre of the sole or on one of the malleoli, these latter processes being generally enlarged, and accompanied by swelling of the adjacent parts. Besides the pain produced by pressure on the plantar surface, the patient generally suffers from lancinating pain through the ankle-joint. This disease is one of frequent occurrence, and many cases of it are admitted every winter into the Meath Hospital, where it is familiarly known by the name I have given to it, viz., "Plantar Rheumatism." The most severely painful instance of all the varieties of periostitis is, perhaps, the paronychia periosteï, or bone-whitlow, to which, as it belongs to surgery, and its treatment is well known, I shall merely allude.

I shall now enter into the consideration of the special pathology of periostitis. This disease may be divided into two kinds, the diffused and the circumscribed. With the former we have nothing to do, it is never found in

the medical wards, and comes properly under the care of the surgeon. It may, however, be well to mention its chief characteristics. By diffused periostitis I mean that form which occupies a large portion of the periosteum, which arises from cold, accident, and other similar causes, which has no connexion with, or dependence on particular states of constitution, or specific diseases, and which frequently terminates in necrosis. The other species, which comes more immediately under the care of the physician, I have termed circumscribed, from its comparatively small extent.

Circumscribed periostitis may arise from cold, but, in the majority of instances, its origin may be traced to some specific cause, as mercury, syphilis, or scrofula. It is a much more frequent disease than the former, and presents several varieties. In the first place, it may exist without detachment of the periosteum from the subjacent bone. Here the periosteum becomes inflamed and thickened, while the bone beneath assumes a greater degree of vascularity and consequent increase of size. By this process, which is always comparatively slow, the connexion between these parts is increased, and the tendency of the augmented vascular action is to form depositions. Hence, the thickening of the periosteum is sometimes very great, and in process of time forms a very considerable circumscribed tumour, which to the touch feels so solid that it is often taken for bone. In this stage of the inflammation pain and tenderness are complained of in the affected part, and we sometimes find the integuments swollen and discoloured. Matters, however, after some time, assume a more chronic form, and the intensity of the symptoms diminishes, there is little or no tendency to grow larger, and the pain and tenderness undergo a change for the better, though they do not cease altogether.

It is at this period that the periosteum, previously thickened, becomes more dense in its structure, and in some cases seems to be almost converted into a fibro-cartilaginous tissue. When this change has been effected, it is doubtful whether the diseased mass is ever again absorbed, though it must be confessed that swellings, whose history and physical characters strongly indicate their having undergone this change, occasionally disappear altogether in the course of a few months. Many instances will occur in the practice of medicine, where cartilage, or even bone, is absorbed under other circumstances, evincing the value of proper treatment, or the efficacy of unaided nature.

To recapitulate : inflammation of the periosteum, attended with deposition and thickening, without effusion of fluid, with increased vascularity of the subjacent bone, and adhesion between it and the periosteum, after remaining for some time, will be found to decrease in the violence of its symptoms, and to assume a fibro-cartilaginous hardness, and in this state it may be absorbed or not. That it may be absorbed, we are led to expect from analogy ; for we see frequent instances of the absorption of cartilage and bone ; but it will be often found to continue for life, and, in some instances, to be converted into a true bony node. It is worth your while to consider how the latter process takes place. Ossification commences in the thickened periosteum, and bone is formed, constituting in general a circumscribed bony node which rises from the external surface of the subjacent bone. In process of time the external lamina of the true bone becomes absorbed, and at the same time a cancellated structure is developed in the node, which becomes continuous with the cancelli of the bone beneath, and thus there is formed on it a kind of bony arch. We are not able to ascertain at what period this takes place ; but you will find instances of this formation in a state of progress in Mr. Howship's account

of some specimens in Mr. Heaviside's museum, in which he discovered that the external surface of the old bone was not quite absorbed, and that no cancelli were as yet formed. A considerable disfigurement is frequently the consequence, where this affection attacks various parts of the same limb ; and you may have observed a man in the chronic wards in whom the shape of the tibia is lost from this cause.

A recurrence of these attacks gives rise to several irregular and partial elevations on the bone, which blunt its edges and fill up its natural concavities, so as to leave scarcely a vestige of its original symmetry, a circumstance which may be frequently observed in the deformed tibiæ of prostitutes. You observe, gentlemen, in the first stage of this disease, the thickened periosteum presents uniform density, but in process of time a cancellated structure makes its appearance in their deep-seated portion, while, as in the natural shafts of long bones, a layer of firm osseous structure constitutes their surface. It is obvious, therefore, that in the first stage there is a distinct line of demarcation between the new and original structure ; while, in the second stage, no such distinct boundary exists, the cancellated portion of both being perfectly identified.

The next form of periostitis is that which is attended with detachment from the subjacent bone, of which there are several varieties. In the first kind you find that, in a space varying from twenty-four hours to eight or ten days, an elevation appears on some part of a bone, with pain and tenderness on pressure, and forming a hard tumour, giving to the touch the feeling of a solid substance. This error may be detected by a more accurate examination, and there will be some elasticity discovered in the swelling. The cause of its seeming to be a solid tumour arises from the manner in which the periosteum is tensely stretched over the effused fluid. In the second stage of this variety there is a gradual diminution of the pain and swelling ; the fluid, which was effused under the periosteum, is absorbed, and the subjacent bone and periosteum become again united. This process generally occupies some time ; but there are instances where its accomplishment is more speedy. Of this nature are the tumours which arise and disappear with such rapidity on the scalp and elsewhere, which yield quickly to leeches and blistering, and, after existing for some weeks, or perhaps even days, vanish, and leave no sensible trace behind. The pathological distinction of these tumours consists in this : that the surface of the subjacent bone does not die, and, consequently, the process of reparation is short ; for when the effused matter is absorbed, there is nothing to prevent the adhesion of the bone and periosteum.

The variety just described is not attended necessarily with ulceration of the skin ; but there is another kind, in which effusion as just described takes place, accompanied by increased vascularity on the surface of the bone beneath. The matter effused at length escapes through an opening made by ulceration in the integuments, and nature effects a cure by means of granulations arising from the vascular surface of the bone, which, uniting with granulations from the periosteum and integuments, repair the breach of substance, and produce consolidation of the separated parts.

In the next variety, matter is effused beneath the periosteum, and the bone of the affected portion becomes vascular at a little depth, while the surface is white and dead, consisting of a thin, worm-eaten cribriform lamina, which after some time separates and opens for itself a passage through the integuments. This exfoliation is followed by a growth of granulations from the vascular bone beneath, and the process of healing is perfected in the manner

before described. In some instances the dead limina is not thrown off at once, but undergoes a very curious process, being perforated, and as if worm-eaten, thus allowing the granulations thrown out by the healthy bone to pass through its structure until the whole of the disorganized plate is removed.

Such are the chief varieties of periostitis, exclusive of that species which is observed in scrofula, and which, from the disease simultaneously affecting the bones and periosteum, can scarcely be called periostitis. In some vitiated and cachectic constitutions the periosteum becomes affected, in consequence of ulceration commencing in the skin from *rupia*, boils, or *ecthyma*; this, however, I shall not enter into at present. With respect to the derangement which takes place in the skin, it always bears proportion to the internal ulceration, and in the first species mentioned there is scarcely any. In the other kinds, it is of great use at the commencement to cut down to the bone through the integuments and periosteum, as recommended by Sir Philip Crampton; for this practice, by lessening the inflammation, limits the quantity of bone which is about to die, and consequently the extent of integument likely to be removed by ulceration.

When we come to consider periostitis, and investigate its causes, we find that it frequently arises from specific poisons, as scrofula, mercury, or syphilis. You have many opportunities in the surgical wards of becoming acquainted with the characteristic marks of that form which owes its existence to scrofula; it is generally milder in its symptoms; there is less pain and tenderness; the swelling is less; and it is most commonly observed in young persons in whom we cannot suspect the operation of syphilitic or mercurial causes. I do not, however, mean to say that you will not find the latter causes combined with scrofula even in very young persons; but such an occurrence is rare. But where this disease occurs at later periods of life, you are sometimes puzzled to decide whether it is a consequence of syphilis, or whether it is superinduced by mercury. When called to a case of this kind, inquire accurately into its history, and if you find the person has taken mercury for the cure of primary or secondary symptoms, that it cured the disease, and the cure was decided; that in a week, a fortnight, or a month after this the patient was exposed to cold; that a great number of spots are simultaneously affected, and in corresponding parts of the limb,—you will be led to conclude that the disease is mercurial periostitis. About a week ago, a young gentleman called on me with several periostitic swellings on his bones. I said to him, “You were taking mercury within the last six weeks.” He said he was. “You then went out, and got cold.” He said he had; and in this way I extracted from him the history of his complaint, and guessed it with such accuracy that he stared at me as if I had a hundred heads. Such a case as this, gentlemen, arises from cold affecting the constitution while under the influence of mercury.

But there is still a more perplexing one; you may have mercurial periostitis mixed up with venereal symptoms. This is no uncommon thing among persons advanced in life, who have had frequent attacks of venereal, and undergone repeated courses of mercury. You have the two diseases blended in a very complicated form, and then indeed are we placed between *Seylla* and *Charybdis*, mercurial action producing a cachectic state of constitution, and venereal a diseased state of certain parts. Moreover, you are all aware every thing that impairs the constitution has a tendency to bring on scrofula.

Now, take a person who is suffering from syphilis; deprive him, as you often must (from the confinement a mercurial course requires), of pure open air, keep him on low diet, and what is the consequence? To the syphilis

and mercurial cachexy you have scrofula frequently superadded, and that hideous combination of disease which we sometimes meet with at the present day, but fortunately not so often as formerly. Some years ago, all such cases were mercurialized—often to death. In the wards of the Lock Hospital in this city, the progress of the patient towards cure was calculated in proportion to the number of pints he spat during the day. In the skulls of persons who lived during the last century, preserved at Leyden, the destruction of the bony tissue is extraordinary; indeed, a phrenologist would be often puzzled by the havoc made by disease among the organs of our forefathers. An old writer, I think it was Herodotus or Xenophon, says that the skulls of the Egyptians lying on a field of battle could be recognised by their hardness. Those of the last century, it seems, we can distinguish by their softness. This is no longer the case; longevity, in the present century, is remarkably increased; and I think there are some countries which will be considerably raised in the scale of population, from the improvements introduced in the treatment of venereal; for this we are chiefly indebted to English surgeons and physicians.

To this subject I have, in the lectures lately delivered on syphilis, especially called your attention; but I cannot avoid saying here, how much credit is due to Sir Thomas Moriarty, Mr. Mathias, Mr. Carmichael, and other surgeons, who were the first in pointing out the baneful effects of excessive courses of mercury. Dr. Thompson of Edinburgh has also done a great deal in promoting our knowledge on this point. It is but just to mention, while speaking on this subject, the valuable and important services of our fellow-townsmen, Mr. Carmichael. When he first published his observations on the treatment of venereal disease, his opinions were looked upon as merely theoretical by most of the surgical profession here, and his practice industriously decried. I do not go so far as to admit all that Mr. Carmichael has advanced; but it is from him we first received abundant proofs that the majority of cases of syphilis can be cured without mercury, and this is highly important.

To the knowledge of this fact, to the more judicious employment of mercury, to the introduction of vaccination by Jenner at the beginning of the last century, and the general improvement not only in diet, but also in medical and surgical treatment, we are to attribute the increased longevity of the present period. Human life had almost doubled, and we began to hope that in 1900 it might be quadrupled. The mortality in London decreased in the proportion of 15 per cent, and the profits of insurance companies increased. In Dr. Hawkins' book, which was published in 1829, you will find that he strongly expressed his gratification and delight at the cheering prospect which lay before us; and we were all ready to sympathise in his anticipations, when, unfortunately, the cholera came, and brought us back to our original position.

But to return to our subject. It is unnecessary for me to bring proofs in support of the opinion that mercury alone brings on disease of the bones. You are aware of the case of a man named William Byrne in this hospital, who got mercury for disease of the liver, and returned in a fortnight after he was discharged, with periostitis. Dr. Lendrick had a case of poisoning by corrosive sublimate some time ago. The stomach pump, and white of egg, succeeded in saving the man's life, but he got a severe attack of periostitis.

I shall now detain you for a short time in speaking of the treatment of periostitis. As to the local means, you will find much good from leeching, and blisters dressed with mercurial ointment, particularly when the disease is recent, and the inflammation circumscribed. I have also found the greatest benefit from mercurial inunction over the affected part. If the blisters pro-

duce but little effect, try the tartar emetic ointment; I have found it useful where blistering failed. In obstinate cases, Sir Philip Crampton's plan of cutting down to the bone may be had recourse to. When a periosteal node breaks, and matter is discharged, and you observe the bottom of the sore covered with pale, unhealthy granulations, or a piece of diseased bone lying in it which ought to be detached, introduce a stick of nitrate of silver, and touch not the whole, but some given part of the surface every day, and you will produce a rapid improvement in its appearance. This treatment was introduced by Mr. Nichol, and you will find a detail of it in the *Edinburgh Medical and Surgical Journal* deserving your attentive perusal.

As to the general treatment of periostitis, where the constitution is strong, and there is no objection to the use of mercury, this remedy, in the form of corrosive sublimate, affords a very certain and speedy relief, having premised venesection and leeching. Even when the disease arises after a course of mercury, or in consequence of syphilis, where its symptoms are violent and the constitution is strong, the rapid introduction of mercury is the best treatment you can adopt. This is particularly suited to that painful species of cranial periostitis which I have described, and which scarcely yields to any other remedy, and also to those cases where the disease attacks the shaft of the femur. In both of these affections the mercurialization, to be effectual, must be carried to decided salivation, and must be continued for three or four days after the mouth becomes sore, though you will meet some cases which yield before salivation. This, however, is an uncommon occurrence. Where the symptoms are less violent, we may content ourselves with Plummer's pill, or blue pill, in alterative doses.

In persons of delicate habit, who are much worn out by disease, and where all other means fail, corrosive sublimate sometimes succeeds, or Velno's vegetable syrup. The latter acts on the constitution in a mild and beneficial manner, and I have seen many persons restored to health by its agency. We must never forget, however, that there is a material objection to the use of mercury among the poor in hospitals; for, on returning home, they are almost invariably exposed to fatigue and cold, have consequently a strong liability to relapses, and are then of course worse than before. This unfortunate occurrence may be generally avoided among the wealthy, and to them the mercurial cure is therefore more applicable. Besides mercury, the most effectual remedies are colchicum and tartar emetic, but particularly hydriodate of potash. You will find that, after bleeding or leeching, by employing colchicum with narcotics, as, for instance, the wine or tincture of the seeds of colchicum, with Battley's sedative liquor or black drop combined with magnesia, you will produce a very powerful effect. You are aware of the power which colchicum possesses in subduing inflammatory affections of the heart, and also of the joints, and it must be looked on as a very valuable remedy. With reference to hydriodate of potash, I am convinced that it possesses greater power over this than almost any other disease. It is of extreme service in all forms of periostitis, whether arising spontaneously, or as a symptom of syphilis, rheumatism, or abuse of mercury. The same rule should be observed which was before laid down, namely, to increase the dose gradually, until a decided impression is made on the disease.

You have, in addition to this, the different antimonial preparations. The antimonial wine and James' powder will be particularly serviceable. You cannot combine colchicum with antimonials, in consequence of their effect on the stomach, but you can combine either with narcotics. During the whole

course of the disease you must employ narcotics ; they relieve pain, and are to be used plentifully, but with discrimination. When the disease becomes chronic, give sarsaparilla with nitric acid. The latter enhances the value of the sarsaparilla, though we are unacquainted with its *modus operandi*. You have, therefore, gentlemen, four modes of treatment ; first, the mercurial, which, where it is admissible, is the most speedy and effectual ; next, the antiphlogistic, consisting of bleeding, leeches, colchicum, antimonials, and narcotics ; thirdly, the chronic treatment, which comprises sarsaparilla and nitric acid, with narcotics, change of air, and time ; and fourthly, that by hydriodate of potash, either by itself, or, what is better, in combination with sarsaparilla.

Before concluding, let me call your attention to an affection nearly allied to periostitis, by which looseness of the teeth is caused, namely, inflammation of the alveolar processes and sockets. Sometimes this originates in disease of the tooth itself, or of the gums ; but in other instances the diseased process commences in the alveolar periosteum, and by spreading to the socket and gums, it gives rise to great pain, swelling, and sponginess of the latter, while it eventually detaches the fangs of the teeth implicated in the attack from the grasp of the sockets, and thus at last the teeth fall out, though in themselves they exhibit no appearance of decay.

The progress of the disease is accompanied by extreme pain, and as a puriform discharge oozes out between the gums and the inflamed periosteum, many limit their attempts to local means, and often succeed in effecting a cure by frequent applications of leeches to the inflamed gum, and in very obstinate cases by incisions freely made through the gums and periosteum. Last year a patient of mine was thus affected, and thus treated, and although under the care of a most skilful surgeon, and of an eminent dentist, he lost successively a left bicuspid and molar of the upper jaw. His sufferings were for a short time relieved by the extraction of each tooth, but in a few days became as agonizing as ever, when, finding all the neighbouring teeth loose, and being told that they also must soon be drawn, he had recourse, in despair, to a celebrated homeöpathic doctor, whose infinitesimal doses completely failed, for the patient's sufferings were produced by a direct physical cause, which lay far beyond the limits to which the influence of even the most powerful imagination can possibly extend. Happening to mention his wretched state to me, I immediately recollected that, a year before, I had successfully treated him for a periostitic affection of the sternum and ribs, and that hydriodate of potash was the medicine which served him most. I recommended him to use ten grains of it three times a day, and had the satisfaction of perceiving a daily improvement, so that pain and inflammation soon ceased, and in about ten days the teeth were all fastened.

The periostitis to which this gentleman was liable was of a rheumatic nature, otherwise his constitution was sound, and he was only thirty-four years old.

LECTURE LXVIII.

AMAUROSIS.—PAINFUL AFFECTIONS OF THE FEET.—CANCERUM ORIS.—ABSCESSES IN THE NECK.—SINGULAR MOBILITY OF THE STERNUM.

IN the present lecture I purpose calling your attention to certain affections which the systematic arrangement hitherto followed did not permit me to notice previously. I shall first speak of amaurosis.

There was in the hospital a man whose case had been marked imperfect, or, to use a better phrase, incomplete amaurosis. He had been complaining at different times during the previous year, and for six months before his admission his vision had been very weak, with the exception of occasional intermissions. He could perceive objects tolerably well with the right eye, but scarcely at all with the left, and, in both, vision was more or less dim and imperfect.

On examining this man's eyes, you cannot discover in either of them the slightest perceptible defect as an optical instrument. The deficiency of vision, therefore, does not depend on opacity of the cornea, on disease of the lens or its capsule, or on any affection of the aqueous or vitreous humours; it is simply an impairment of the vitality of the organ, connected with functional disease of the retina. Having thus satisfied ourselves as to the seat and nature of the disease, we come next to inquire into its cause and origin. From a careful examination of the man's state of health, we can have no doubt on our minds as to whether the amaurosis in this case has been produced by derangement of the stomach or not. You are all aware that the celebrated Richter has long since shown that functional disease of the retina is often connected with a deranged state of the alimentary canal, and that it may be treated successfully with emetics and purgatives. Here, however, we have no evidence of the existence of congestion or derangement of the stomach and bowels. The man's appetite is good, his bowels regular, and his health robust.

But when we come to examine the head, we find evidence of cerebral congestion sufficient to account for the functional lesion of the optic nerve. Our patient has been a long time complaining, at different periods, of a sense of fulness in the head, and is subject to attacks of vertigo while walking, causing him to stumble occasionally, and labour under frequent apprehensions of falling down in the street. He prefers walking along the middle of the street to either side, and says that he is always worse when he attempts to walk along the flagway. This is an ordinary symptom observed among persons who have a tendency to vertigo; they are frequently made worse by the operation of causes in themselves apparently inconsequential, and the nature of which we cannot well understand. You are aware that, in many persons, the act of looking for any length of time at objects moving rapidly in a straight line, and still more in a circle, has a tendency to produce giddiness. Thus, looking out of the window of a steam-carriage on the objects apparently moving backwards with great velocity, or looking over a bridge at the current

of a rapid river, or gazing at a person whirled round in a gyrating swing, is very apt to give rise to vertigo.

Again, persons labouring under a morbid sensibility of the brain very often become giddy from looking at a succession of objects moving with much less rapidity. Hence you will find such persons made giddy by walking through a crowded city, and having a number of persons pass by them on the flagway, and they seek for an opportunity of getting into the middle of the street to avoid meeting so many objects. I knew a person who could never pass by a line of railing with any degree of comfort ; if he happened to look at them as he moved by, he became almost immediately vertiginous. Giddiness is also generally produced by looking down from a great height in a vertical direction, or by looking upwards, provided the object be immediately overhead, and at a great distance. Under these circumstances most persons experience a feeling of vertigo, no matter what their position may be at the time. There seems to be little doubt that the sensation of giddiness does not depend merely on the distance or position of the object looked at. It would appear that, in general, some continuous communication must exist between the object and the spectator. Thus we feel giddy when we look down from a precipice at something below, or, when standing beneath the dome of St. Peter's or St. Paul's, we regard with attention the vaulted structure above ; but we do not feel giddy when we look down from a balloon, or look upwards at the moon or stars near the zenith.

It has not been sufficiently remarked by writers, that persons subject to vertigo are often almost as much affected by looking upwards as by looking downwards. Persons who are inclined to vertigo will also become giddy by directing the eye with a fixed attention for any length of time to the one object, such as continuing to look in a straight line, or endeavouring to direct the course of their movements along a plank or narrow pathway. These circumstances are all very difficult to explain, and I bring them forward merely as illustrating the fact of this man's preference for walking in the middle of the street.

In this man, as you may have perceived, we have several circumstances calculated to direct our attention to the state of the brain as connected with the impairment of vision. Besides vertigo, and a tendency to stumble in walking, he had flashes of light before his eyes, other and luminous hallucinations, with tinnitus aurium on one side. With respect to the flashes of light before the eyes, I may observe that they may be produced by the operation of various causes ; a blow or pressure on the eye will cause them ; they may arise also from a particular state of the arteries which supply the optic nerve, and thus, at each pulsation of the heart, a flash of light is seen. This morbid sensibility of the retina, which, under such circumstances, appears to be itself the source of light, is very often a symptom which ushers in the extinction of the visual power.

It is a very general remark, that hyper-sensibility of an organ is but too often the prelude to total loss of its functions. Thus we frequently have a morbidly sensitive state of the eye before it becomes incurably amaurotic, a morbid sensibility of the ear ushering in loss of hearing, and unnatural excitement of the sense of touch preceding paralysis. But in this case we have not only an irritable condition of the retina, but also an affection of the pupil ; the iris is sluggish in its motions, and this symptom occurring at this particular period, combined with the vertigo, luminous hallucinations, and gradual but steady progress of the disease, gives us some reasons to apprehend

that it will end in complete amaurosis. Seeing, however, that the symptoms have originated in a congested state of the brain, it is our duty, as far as possible, to check its progress. This is to be done by cupping over the nape of the neck, leeching the temples and behind the ears, and acting on the bowels by brisk purgatives. With the same view I intend to insert a seton in the nape of his neck, and to administer the nitrate of silver internally, combined with a small quantity of aloes, a remedy which is possessed of some valuable properties in the treatment of chronic congestion of the brain, whether tending to produce amaurosis or headache.

With respect to the causes of amaurosis, I may observe that they depend either on disease of the brain, as congestion, inflammation, the presence of tumours of various kinds, or on injuries of the retina itself, or of the supra and infra-orbital branches of the fifth nerve, or on affections of the alimentary canal. All these matters, however, have been so well detailed in different articles on amaurosis to which I refer you, that I shall pass over them at present, and close my notice of this case with a few desultory remarks. I mentioned in a former lecture that I had seen a very curious case of amaurosis, in which the cause of the disease seemed to be connected with an impression made by cold on the facial branches of the fifth nerve.

I have already taught the class that paralysis of any part of the body may arise from an impression made not only on its own nerves, but also on the peripheral extremities of the nerves of another and even a distant part. I have also remarked, that the fifth nerve is connected with the nerves of all the senses, but in particular with the optic; and hence we can explain why injuries of its supra and infra-orbital branches may bring on amaurosis. In the case to which I refer, the patient was exposed, while travelling outside on a stage-coach, to a keen north-easterly wind, and when he arrived in Dublin his lips were very much chapped, and the skin of his face bore evident marks of the cold and drying powers of the wind. Soon afterwards he began to complain of dimness of vision, and a thin gauze veil seemed to be extended between him and every object he looked at. After five or six days, when he applied to me, I found a considerable degree of amaurosis present, and at the distance of a few feet he was unable to recognise the countenance of a friend. He had no headache, vertigo, or tinnitus aurium—in fact, nothing to indicate cerebral congestion—and his appetite was good, sleep undisturbed, bowels regular. He had never thought himself, nor did a medical gentleman to whom he had applied ever suspect, that the impression of cold on the face had produced the amaurosis, and he said that he had been advised to get himself leeches and cupped over the back of the neck.

On examining into the cause of his disease, and having found that he had been exposed to severe cold, it occurred to me that the amaurosis might be connected with the impression made by cold on the superficial branches of the fifth nerve, and, on more accurate investigation, I found that there were some grounds for this opinion. I was further confirmed in this view of the subject by the details of a case communicated to me by Dr. Montgomery, in which the patient evidently got paralysis of the portio dura from exposure of one side of the face to cold. Of course this paralysis was attended with distortion of countenance, in consequence of many of the muscles of the face depending on the portio dura for their supply of nervous energy. But what was particularly remarkable in this case was, that vision on the affected side of the face became dim and indistinct. Now, can this be explained? Yes, very easily. You all know that the branches of the portio dura have an extensive

communication with the supra and infra-orbital branches of the fifth. Now the paralysis, which commenced in the portio dura, gradually extended to the branches of the fifth, and through them to the optic nerve, with which the fifth is intimately connected, and hence it was the retina became finally deranged in its function, and dimness was produced.

There is one circumstance more to which, as I am on the subject of amaurosis, I shall briefly call your attention. You will recollect the case of a boy whom we have had very recently under treatment for amaurosis, and may, perhaps, remember that one of the remarkable points in his case was this:—When he looked straight forward, he did not see anything in the direction to which his eyes were turned, but he could see the objects that were considerably below, or to either side of the axis of vision. There are two or three circumstances under which a person cannot see an object by looking directly at it, and I wish to state these circumstances. In the first place, it may happen that an opaque spot may be situated on the centre of the cornea, and directly in the axis of vision, as we sometimes see in cases of scrofulous ulceration followed by permanent opacity of the cornea. Now, in this case, it is plain that the person cannot see objects placed directly before him, and in the axis of vision.

The second case is where the patient cannot see objects directly before him, but can distinguish them tolerably well at an angle of obliquity, the cornea being perfectly clear and uninjured in its texture. Now, this may arise from an opacity of the lens, limited to its centre, and not generally diffused through its substance. The lens is a compound body, the structure of which was, until very lately, but little known. When the lens or its capsule is affected with opacity, this opacity is not always equally diffused, but sometimes occupies the central portions of these organs, while the circumferential portions retain their transparency. Hence, when a person under such circumstances wishes to see an object, it is necessary that the rays of light should fall obliquely in order to reach the retina. A third case is where, although the cornea and crystalline lens are in the natural state, still the patient sees objects a little removed from the axis of vision much better than those which are in it; as in the case to which I have just alluded, where the patient could scarcely distinguish any object placed before him, but could see tolerably well objects at either side of, or below the direct line. The reason of this appears to be, that when a person so circumstanced looks directly at an object, the picture of the object falls on a part of the retina not obedient to the stimulus of light.

In the process of ordinary vision, the parts around the axis, and corresponding to the field of vision, have the picture of the object looked at painted on them, and vividly and strongly illuminated. The central portion of the retina bears on it the picture of the object which the mind attends to; for it is surprising how indistinct, and how little attended to, any object seen obliquely is. Now, where disease has rendered this central portion of the retina insensible to light, then the attention is immediately turned, with a greater degree of intensity, to the sensations derived from the surrounding portions, and the patient is enabled, so long as this portion retains its sensibility, to enjoy the sight of objects placed obliquely, and not in the axis of vision. Even in healthy eyes the non-central portions of the retina may be rendered available in particular cases. This has been proved by Brewster, Herschel, and others. In looking, for instance, at a star of the smallest magnitude, it vanishes from the sight and is lost when looked at directly, but if you turn

a little from it, it will still catch the eye and be visible, because the image of the star will now fall on a part of the retina which is generally in darkness, and which is more sensible from being unaccustomed to the glare of light. Hence, in many cases of amaurosis, it is not unusual to find that the patient retains the power of vision, so far as regards objects placed at an oblique angle with the axis of the eye, after direct vision has been all but extinguished. This is all I have to say at present with respect to amaurosis.

In my lecture on Inflammation I brought forward proofs that the views commonly entertained of the forces which carry on the circulation in the human body are incorrect, and endeavoured to show that, besides the contractile force of the heart and larger arteries, the human system possesses a power by which alone the circulation is carried on in plants and in the inferior animals, that is, the power residing in the capillaries and smaller arteries. I endeavoured also to prove that the capillaries exercise a remarkable influence in the process of inflammation, and that the part they play is independent of any force derived from the heart's action. Now, that the smaller vessels of a part possess an extraordinary power in modifying its circulation, independently of any *vis a tergo*, is rendered quite plain by the phenomena observed in all erectile tissues, in the clitoris and penis, mammae, &c. &c.

Professor Müller and Dr. Houston have endeavoured to show that there are provisions in the veins and arteries calculated to favour the rapid afflux of blood to these tissues; but their explanations are quite insufficient to account for the phenomenon, which remains a striking instance of the power possessed by the nerves and arteries of a part in producing a great and instantaneous change in its circulation, independent of any impulse from the heart; and the fact can be only explained by supposing that the vital influence of each part has the principal share in modifying its own capillary circulation. The cases I am now about to relate briefly all bear upon this question.

The first is that of a young lady who had the catamenia suppressed at the age of sixteen, and who had been for some time in a bad state of health. After an accidental diarrhoea, which weakened her greatly, she became subject to a very curious affection of the feet and legs. The attack generally commenced at night, involving the foot, ankle, and leg, half way to the knee. It is generally confined to one foot and leg at a time, and when it subsides in one extremity begins in the other. The affection commences with heat and tingling of the sole of the foot, then of the instep, ankle, and leg, as high as the middle of the calf. These symptoms go on increasing for some time, the sensation of heat becomes extreme, and the pain agonizing. In proportion to the increase of these symptoms, the vascular congestion and fulness of the limb are augmented—the smallest veins are rendered distinct, and the larger ones become prominent. This state lasts for eight or nine hours, the sensation of heat and pain being all the time nearly insupportable.

The resulting congestion of the cutaneous capillaries occasions a change in the skin, which, as the fit proceeds, grows at first red, and then gradually assumes a more suffused appearance and a deeper hue, until it becomes swollen, smooth, and shining, and resembles very much in colour a black cherry when nearly ripe. When the hot fit ceases, the slight swelling and this discoloration subside, and the affected parts remain during the next stage pale, deadlly cold, and comparatively free from pain. While one leg is in the hot stage, the opposite leg is cold and pale, but free from pain; but as soon as the pain

and heat have disappeared in the limb first affected, the same series of phenomena commences in the other leg, and lasts for the same length of time, after which both limbs are in their natural state, and for two or three hours she is comparatively free from suffering, although some uneasiness still remains, which she compares to a numbness or some such morbid sensation not easily defined. This disease commenced in 1837, and its paroxysms have returned every day since. At first the pain was intolerable, and the daily amount of ease she enjoyed did not exceed three hours. This occurred quite regularly, beginning about four, and lasting until seven o'clock in the morning, during which three hours she had some sleep. Now (October, 1840) the intermission occurs at eleven, a.m., and continues until seven in the evening. In 1837 she could not sleep at all when either foot was in the hot fit, so great was the pain; now she enjoys tolerable rest at night, although one or other of the extremities is in the hot stage during the whole time she is in bed. She is much improved in appearance, and though of slender form and tall, she has become sufficiently fat; and being a person of most placid temper and great beauty, no one who sees her in the drawing-room, apparently in all the bloom of health, would suspect her to be such a martyr; even now she is obliged to sit or recline on the sofa during the entire day, for if she walks much about the room, the hot fit in her limbs is immediately brought on. The suppression of the catamenia made us at first consider this strange affection as a variety of hysteria, but in about six months the female function resumed a perfect regularity, without bringing the slightest alleviation of the symptoms.

Neither could we attribute the continuance of the disease to any particular constitutional defect, for though her form was slender, her aspect was healthy, and her general state of health was better than could have been expected, considering her nearly unceasing pain and almost total want of sleep. In order to convey a more accurate idea of this singular malady, I shall read some extracts from letters written to me by her mother, a lady of great intelligence, who, at the risk of sacrificing her own health, has attended her suffering child night and day, during her illness, with that assiduity which none but a mother can exhibit.

"January 10th, 1837.—I do not think she has recovered the effects of an obstinate toothache on her general health. Her appetite is completely gone, and her looks indicate extreme delicacy; besides, her poor feet were particularly hot and inflamed, and continue now severely affected by the intense coldness of the weather. Frost and snow and fearful storm have prevailed here of late, and we have not had our sufferer out for some weeks, which is greatly against her.

"I cannot say that there is any change in the appearance of the limbs, nor in the description of pain, save that they smart very much during this frosty weather, and we cannot assist to cool them as much as we would, lest the cold water would cause any breaking of the skin."

In explanation of the above, I have to observe that, during the hot state, the only thing which afforded the least relief was cold water; cloths, dipped in the coldest water that could be procured, were applied to the feet and legs constantly during the night. Sometimes the extreme severity of the pain was diminished by patting, or gently touching with the hand the affected parts, and her attendants used to spend hours together in affording her the alleviation so obtained.

"23rd March, 1838.—So far from being in the least relieved, the limbs are

now unceasingly in a state of swelling particularly distressing ; and, whether cold or hot, alike ; and both stages of this most extraordinary complaint are now attended with acute pain and extreme *discoloration* far beyond what they were in Dublin.

" Her nights are worse, and extreme exhaustion and lassitude are visible during the day, and depression of spirits hourly increases. Assurances of ultimate recovery and future ease are alike unheeded by her, and I am myself greatly distressed.

" Indeed I look on her present state as much more alarming than heretofore ; it is quite evident the constitutional effort has not in the least relieved her feet ; and the extreme swelling is, in my mind, very alarming.

" Her appetite is daily declining ; I am seriously unhappy about her.

" The skin shines just as if in erysipelas ; the soreness to the touch becomes greater than usual."

" April 26th, 1838.—No improvement in her health seems in the least to affect her limbs.

" The determination of blood has quite returned to its former course ; the rush is sudden, and rapidly extends to the toes now, instead of tarrying awhile at the instep and heel, as for a time it seemed to do.

" The heat is quite as great as when in Dublin, but the cold stage is more painful. The cold and numbness are now felt all the way up the legs ; *before*, it was only from the ankles over the foot ; and should the patient recline on a bed or sofa during the cold stage, the sensation on rising off either is particularly distressing.

" The veins each morning, on leaving bed, are distended just as you have seen them, and the livid hue overspreads the feet as then ; and, also, when cold. The only application we use is milk and water, and patting them frequently ; but even that alleviation my daughter cannot have as heretofore, for, from the extreme tenderness of the parts, the slightest touch pains her.

" Swelling of the feet sometimes continues throughout the entire day, and generally the hot fit is more protracted than formerly ; never less than twelve or fourteen hours, and often more.

" My daughter now experiences a tendency to *palpitation* which she had not before, and this arises frequently without any particular cause, although the entrance of a person unexpectedly or suddenly into the room would excite it. And when the palpitation of the heart comes on, there is a *similar feeling* experienced in the limbs, especially from the calves of the legs down, as though *palpitation* was *there* also. Going up stairs does *not* bring on this palpitation, which one would suppose it might do.

" The bowels require assistance as formerly, but magnesia is quite sufficient, given once a week ; however, the two last times we have perceived greater sickness attended, and extreme debility all through the day after. Flushings of the face are very frequent, and sleepiness ensues after the mid-day glass of wine, though usually the wine is diluted with water. Generally speaking, her looks are decidedly improved, though she is not fatter than when in Dublin. She has now scarcely a hope of ever being relieved from this most distressing determination to the limbs ; though in general she is enabled to bear up with surprising cheerfulness, and occupies herself in various useful ways.

" A short drive yesterday (the first fine day for a length of time) fatigued her, but did not induce more sleep at night.

" When in conversation, we were led to reflect that it was just after the severe attack of *diarrhœa* in *September last* that this extraordinary determi-

nation commenced; we think, perhaps, it was entirely consequent on it, and would again ask you, my dear sir, could this have been the case, and how? This idea is completely fixed in the mind of your patient."

"May 7th, 1838.—I grieve to be obliged to continue my detail of suffering; painful nights, without sleep, are succeeded by days now scarcely less painful, as the heat and swelling seldom abate.

"Discoloration and swelling are general all over the feet, ankles, and instep. At the back of the legs, just at the commencement of the calves, a lump appears to form, owing to the determination there; and the backs of the legs, from that up to the knee, are particularly hard to the touch; and this is not in the veins alone, as formerly, but generally all over. The appearance of the feet, and toes especially, is shining, as if in erysipelatous inflammation; at least, I have witnessed similar appearances under such.

"Extreme weight in the limbs, both when hot and also when cold. The coldness is quite as great as when in Dublin; the burning heat equally in an extreme. The pain sets in with the slightest approach to warmth, and the cold stage is no longer one of comparative ease, as last winter; for the sense of weight is as great as when heat prevails, and walking about the room induces swelling at once, even though it might have subsided beforehand.

"I think your patient by no means improving as to appetite or general strength *at present*; the slightest exertion evidently overcomes her; the kidneys act very scantily, and the discharge very muddy and of a reddish hue; the sediment of a white and reddish hue also. Bowels require assistance every fourth or fifth day; magnesia now excites extreme sickness; even faintishness attends each action of the bowels after it."

"May 25th, 1838.—I am sure you will be concerned to hear that I have not more cheering intelligence to detail respecting your patient here, than when I last wrote to you.

"I think, on the whole, the determination to the feet has been greater than before; the swelling more general over the ankle and entire foot, and discoloration equal when cold as during the hot stage, attended with shining appearance of the skin, which really alarms me to look at; pain great as ever; and the last few mornings violent pulsation or throbbings in the heel.

"On first arising out of bed in the morning, she feels as though the veins at the back of the legs, toward the calves, were cutting asunder by some sharp instrument. Walking evidently increases the determination downwards, and excites the pain and swelling more than any other thing; yet *walking* would be her *favourite* exercise, if she could use it to any comfortable extent. When taking a drive in the carriage, she gets a great pain in her left side; headaches are frequent, and her complexion very variable during the last fortnight. Bowels have not acted at all, *unless assisted*, since I last wrote to you; and, after magnesia on Wednesday morning, extreme pain and sickness ensued, and a number of constipated lumps came away. Appetite is far from good; thirst increases greatly; her wine in the middle of the day causes immediate flushing, and a disposition to perspire over the hands, face, and neck, all evincing extreme debility. She often feels as though a stream of water, icy cold, was rushing down through her limbs, and, when rising from her chair during the cold stage, feels as though she stood in snow."

The preceding details, extracted from some letters written by the patient's mother, will convey to you a more accurate idea of her sufferings than could be imparted by any description of mine. It is remarkable that the disease of her feet was not accompanied by the least derangement of her general circulation, or of the state of the rest of her skin.

This young lady was frequently seen by Sir Philip Crampton, Mr. Colles, and Mr. Cusack, and her case excited in their minds the greatest interest, for they had never witnessed anything similar. At first, chronic inflammation of the arteries in the limbs was suspected; but this suspicion was set aside by the subsequent duration and course of the malady.

No plan of treatment, whether general or topical, which afforded the slightest prospect of relief, was neglected. Every variety of lotion, cold and hot, stimulating or narcotic, of ointments, bandages, poultices, affusion, were successively tried, and the parts were often leeches in the hot stage, but without any relief. Internally, quina, arsenic, iodine, hydriodate of potash, chalybeates, purgatives, diuretics, and mercurialization have all successively failed, nor has she ever received the slightest benefit from any anodyne medicine whatsoever. From the resemblance which the derangement in the circulation of her limbs bears to that produced by ergot of rye, I was led to try that medicine, but it did not produce any notable effect on the disease. It is curious that this long-continued derangement in the circulation of her lower extremities, and the extraordinary pain she has experienced daily for the last six years, have not produced any paralysis, any diminution of muscular power, thickening of the skin, induration of the subcutaneous areolar tissue, or stiffness of the joints. Considering how hot, red, and swollen a considerable portion of each limb is during many hours every day, it is quite surprising that no evident alteration of structure was the result. This fact is extremely interesting in a physiological and pathological point of view, proving, as it undoubtedly does, that changes in texture are influenced by causes quite independent of the state of the local circulation.

In general, we observe that increased sensibility of the nerves of any part, when long-continued and severe, is followed by a proportional paralysis of sensation; but, in the case before us, the cutaneous nerves of the leg have been exquisitely painful for years, and yet not the least approach to paralysis, either of sense or motion, is perceptible.

In 1843, when the first edition of my *Lectures on Clinical Medicine* was published, I inserted in a note the following account of the last report I had of this young lady's state:—The disease still continues without any intermission, being, as before, much worse in winter; but, on the whole, the pain is not so severe as formerly, and the daily paroxysms are of shorter duration. In proportion as the pain and intensity of the heat have somewhat diminished, her general appearance and health have improved.

Since then I have received numerous communications from several parts of the world—England, America, &c.—suggesting the most varied plans of treatment, and the most different opinions as to the cause of this affection. But although nearly every remedy in the pharmacopœia was tried, none seemed to have had the least effect; and she gradually got well, I might almost say, in spite of medicine, and has now been quite free from the disease for more than twelve months.

Although I myself have not witnessed anything precisely similar to this case, yet I have seen a few local affections which presented some analogous symptoms: one of these I shall now briefly describe. I saw it with Mr. Moore of Anne-street, who, at my suggestion, kept accurate notes of the progress of the patient, who was visited also occasionally by Sir Philip Crampton.

Mrs. —, aged 82, of a robust, healthy constitution, and florid complexion, in the month of February, 1839, had a slight paralytic affection of the left arm and leg, preceded and accompanied by headache, vertigo, flashes of light

before the eyes, &c. About a month ago she experienced a sensation of cold in the right foot, which, on rubbing the part, gave place to a feeling of heat and itching; on examination, she found that the anterior half of the foot was swollen and red. In about three weeks from the first seizure, the sensation of cold continuing, it became extremely painful, and she then first applied for medical advice.

August 1st, 1839.—Complains of severe pain in anterior part of right foot, which is swollen and red; there is considerable œdema of the ankle and lower part of the leg; the extremities of the toes are dark red with some lividity. Her general health is good, with the exception of occasional headache with vertigo. Bowels free; appetite good; pulse regular. She was ordered a stimulating liniment, and internally small doses of hydriodate of potash.

5th.—She experienced much relief from the use of the liniment. The œdema about the ankle is much less, but the swelling of the anterior part of the foot continues nearly as before.

13th.—The great toe has to-day a peculiar shining and *bloody* appearance, the fourth is livid at the extremity, the second and third are red, but not livid. Four leeches were applied to the great toe, followed by a poultice of bread, milk, and oil to the foot; it was impossible to get the leeches to take on the other toes, in consequence of the recent use of belladonna ointment.

15th.—The toe to which the leeches were applied has been completely relieved, but the livid appearance of the fourth still continues; second and third appear much swollen, and are very painful; ordered to apply two leeches to each, and one to fourth.

17th.—Considerable pain last night. We thought now that the pain, redness, and swelling exhibited exacerbations recurring every second day, and we accordingly gave her quina in small doses, and again leeches the toes. As the quina disagreed with her stomach, it was administered every night in a starch injection, with a few drops of laudanum, and continued for a week; while the toes most affected were repeatedly leeches, and various soothing and anodyne applications tried. The pain was of a most excruciating character, and its exacerbations, though not regularly periodical, showed a decided tendency to return every second morning at a given hour. Sometimes one toe, and sometimes two or more, were simultaneously attacked, and in proportion to the intensity of the pain, the affected parts became swollen, red, and then of a shining purple hue. Such was the course of the disease from the 1st of August to the 15th of September.

On that evening Sir Philip Crampton saw her, and the following medicines were ordered:—

R. Misturæ Camphoræ, fʒj.

Vini Radici Colchici, min. xx. Misce; fiat haustus ter in die sumendus.

R. Decocti Papaveris albi, Oi.

Extracti Conii, ʒss.

Extracti Opii aquosi, gr. x. Misce; fiat solutio pro cataplasmate.

Sept. 16th.—Pain completely relieved.

17th.—The pain returned this morning at four o'clock, but not so violent.

Repetatur haustus.

30th.—The foot has been since last report gradually assuming its natural appearance; there is now very little swelling or lividity. The pain has not

latterly been so intense, and is of a different character, being described as resembling the sensation experienced when the circulation is returning in a limb which had been "asleep." The accessions are now generally in the evening, to which they have gradually come, occurring at three, two, one, twelve o'clock, and so on. Applications which formerly gave great relief are now followed by intense pain, and cannot be borne, as anodyne liniment; the application of fresh hemlock bruised was also intolerable. Emollient applications, as chamomile stupes, bread and milk poultices, give most relief; general health is good; is at present using effervescing draughts with tincture of orange-peel.

October 7th.—The foot has not been painful since last report, and its appearance now is as nearly as possible natural.

Soon after this, she got a slight paralytic stroke, followed by more severe attacks of an apoplectic nature, and expired in consequence of cerebral disease on the 25th of November.

It is obvious that the good effects of the colchicum may excite the suspicion that the inflammation was of a gouty nature; still, however, the manner in which it so gradually began, the remarkable violence of the pain, and the change of colour in the skin which accompanied each paroxysm, were of so striking a character, and presented analogies with the case of the young lady before related so obvious, that I have thought it right to place the history of the two cases side by side.

The absence of dyspepsia, and all constitutional or local symptoms of gout, up to the age of eighty-two; the freedom from gouty deposits, which the urine exhibited throughout the whole course of the old lady's malady; and various circumstances that cannot have escaped your notice, render the hypothesis which ascribed her suffering to gout more than doubtful; and the doubt is still further increased by the very gradual manner in which the disease subsided under the use of colchicum, and its preserving its "tertian" character to the end.

The affection of the foot and toes was so painful, and the discoloration and purple hue of the skin so intense, that we naturally apprehended its terminating in something like *senile gangrene*.

Let me now direct your attention to the case of a child about four or five years old, who has been for some time in the fever ward, and has been recently attacked with a very formidable disease, *cancrum oris*. Like most patients labouring under this malady, she had been previously debilitated by the occurrence of fever; for a child in good health seldom, indeed I may say never, gets an attack of this kind. A preceding febrile condition of the system, and a depraved habit of body, must have existed in every case where *cancrum oris* occurs. The disease itself is nothing more than mere local inflammation setting in under unfavourable circumstances, and during a morbid state of the system; and hence the local inflammation rapidly assumes the gangrenous character. In children, many forms of general disease are apt to bring on a state of the system in which inflammation of any part has a strong tendency to run into gangrene, and this is to be borne in mind with reference to the present case, for *cancrum oris* has nothing peculiar in it except its situation.

It is not my intention at present to enter into any particular description of this disease; it has been well described by many surgical writers, and you will find a very valuable essay on the subject published by Dr. Cuming in the fourth volume of the *Dublin Hospital Reports*. There is also a very excellent

article on cancrum oris in the *Cyclopædia of Practical Medicine*, to which I beg leave to refer you. It may, however, be necessary to allude briefly to some points connected with its treatment. In the first place, I may observe, with reference to the general principles of treatment, that you should not be misled by the name of the disease, or think that because there is a gangrenous condition present, you should rely exclusively on detergent and antiseptic remedies. This is a common but pernicious error—it is the error of prescribing for names and not diseases, the easy but dangerous practice of unreflecting empiricism, by which the reputation of medicine has been so often damaged. He who commences the treatment of cancrum oris with the internal and external use of antiseptics is acting on false principles; his practice may have the sanction of time, but it has not the support of observation and experience. In the early stage of the disease, when the cheek is of a deep red colour, tense, prominent, and shining, I do not know of any means which tends so directly to diminish the amount of inflammation, and check the progress of gangrene, as the application of leeches, few in number, but frequently repeated. This is the mode of treatment which I have found to be most effectual, and which, from my experience of the disease, I can recommend as the most likely to prove beneficial, when, unfortunately, the ordinary resources of medicine are too often ineffectual.

With respect to internal remedies, Dr. Cuming lays great stress on the utility and value of purgative medicines. They may be certainly necessary, and as the little patients very often swallow the sanious discharge from the ulcer, more or less derangement of the intestinal canal must accompany the disease. But along with purgatives I would strongly recommend the use of sulphate of quina, either in the form of enema, or, if the child can be got to swallow it, made up into a syrup, and its solution flavoured by the addition of a little sulphuric acid. With regard to the external applications, you have a choice of many remedies, each of which you will find recommended by authors, but none of which can be exclusively relied on in any case. The balsam of Peru with castor oil forms a good application, or you may blend it with honey, as we did in this case—one ounce of the balsam to two ounces of honey. You may also employ washes composed of solutions of nitric or muriatic acids, or of the chlorides of soda or lime.

In the present instance the sore has, in spite of all our efforts, eaten its way from the internal to the external surface of the cheek. On Saturday, the centre of the cheek was characterized by the appearance of a bluish-black spot, indicating the occurrence of sphacelus. In the meantime it was curious to observe how little constitutional disturbance was yet produced; the child, notwithstanding the manifest existence of extensive sphacelation of the cheek, continued for several days to have a tolerable appetite, and to sleep well, being nearly free from fever, and complaining but little; as the mortification progressed, destroying rapidly the external parts of the cheek, &c., matters soon altered, and the poor little patient sank, exhausted and suffering.

I shall next shortly refer to the boy Cartney, aged 12, who was admitted into the Hospital labouring under the following symptoms, which he stated were only of three days standing. He complained of pain in the lower part of the neck, just above the sternum, and extending outwards under both sterno-mastoid muscles, and which was much increased by pressure. There was very little swelling; the space between the two muscles just named, at the lower part of the neck, appeared full; there was no redness or œdema.

Just above the sternum there was inflammatory induration, but no soft point was detected. The chin was approximated to the chest, and any effort to bend the head backwards was attended with pain. He complained of pains of a lancinating character shooting up and down through the lower part of the neck, and when these were most severe, the muscles of the face were thrown into strong spasm, resembling their condition in tetanus. His breathing was hurried and difficult; but he *had no stridor*. He complained of dysphagia. There was no enlargement of the tonsils, or cedema of epiglottis or uvula; skin hot; pulse 112, very small; no cough. He died the next morning, previous to which he had an attack of convulsions.

Post Mortem.—The integuments and muscles were dissected so as to expose the thyroid gland. This body presented its usual appearance, except that it was pushed forward, and was more prominent than is commonly noticed. On dividing a strong fascia on one side of the gland, a large quantity of extremely fetid pus, of thick consistence and greenish colour, escaped. The thyroid gland being divided, an abscess about the size of a hen's egg presented itself, lying behind that gland and in front of the trachea. This abscess communicated with two others, one on the right side of the trachea and the other on the left; that on the right extended between the trachea and œsophagus; the one on the left did not go in between these tubes, but advanced upwards. They both contained the same kind of matter as that already described. Forming part of the contents of the abscess on the left side, was the recurrent nerve, completely dissected from surrounding parts, up to where it gets under the inferior constrictor of the pharynx; here it presented a reddish hue and seemed enlarged.

These abscesses had no communication either with the trachea or œsophagus.

Before concluding, I just wish to mention a singular case of mobility of the sternum, which was seen by Dr. Stokes and myself. A medical student, 19 years of age, and of a sanguineous temperament, who had often been attacked by violent pectoral inflammation, particularly a few years ago, but who had since become comparatively healthy and robust, applied to me for advice concerning a pain in his chest. This happened after lecture in Sir Patrick Dun's Hospital, in the presence of several of the students and Dr. Law, who saw with astonishment this young man open his shirt, and with his hand push the sternum deep inwards towards the spine, so as to convert the anterior part of the chest into an extensive and by no means shallow cavity, at the bottom of which was the sternum. The rapidity with which this was effected, and the unnatural appearance the chest then presented, excited a most disagreeable feeling of alarm in the minds of the spectators; for we could not avoid dreading that he was inflicting on himself some serious injury.

The portion of the chest which yielded in this singular manner to pressure comprised the sternum from within two inches of its superior edge, and seemed below this point to be limited laterally by the lines answering to the junctions of the cartilaginous with the osseous portions of the ribs, so that the whole space capable of being pressed inwards was nearly triangular in shape, and was very extensive. The sternum was so tender to the touch, that in applying the pressure he was obliged to press at some distance at each side of this bone. When the pressure was carried to the farthest point, the sternum was pushed in, as nearly as we could guess, about two inches, and the action of the heart, as well as that of the subjacent lung, appeared to be notably diminished, and in consequence of this the pulse was weakened.

This young man was subject not only to constant pain in the sternum, but likewise to frequently recurring violent palpitations of the heart. His chest was sufficiently ample and well formed, but he had lately become round-shouldered, in consequence of his seeking relief from pain by stooping forwards. No other portion of his osseous system exhibited the least trace of softening. The only affection which I can call to mind, the least resembling this, is the softening which sometimes affects the female pelvis, giving rise to great distortion, and which softening is accompanied, during the months or even years of its formation, by severe pelvic pains.

LECTURE LXIX.

SLEEPLESSNESS IN DISEASE.

SLEEPLESSNESS is a very curious result in disease. It accompanies certain morbid conditions of the system brought on by active disease or by grief, care, and various other forms of mental disturbance, continues to harass the unhappy sufferer night after night, and frequently resists the most powerful and decided narcotics. I do not intend to enter into any inquiry respecting the different states of the constitution in which it occurs; my purpose is merely to offer a few practical remarks on the more obvious and striking examples, with the view of illustrating the cases to which I wish to direct your attention.

There is a form of sleeplessness which is frequently the precursor of insanity, and which has been well described by Dr. Adair Crawford. The watchfulness in such cases is accompanied by the well-known symptoms of incipient mental derangement, and its treatment is therefore inseparably connected with that usually resorted to in cases of threatened insanity, and embraces the employment of means moral as well as physical. Of these it is not my intention to speak; I may observe, however, that Dr. Crawford has found opium, gradually increased to very large and frequently-repeated doses, so as to produce sleep, the best remedy.

In a case of jaundice in the hospital, the patient, an old man, passed several nights without any sleep. He was just beginning to recover from the jaundice when this new symptom appeared, and I directed your attention particularly to the circumstance, because every manifestation of nervous derangement connected with jaundice should be carefully watched. It frequently happens that jaundiced patients sleep too much, and in some cases the disease is accompanied by convulsions, succeeded by coma—most alarming symptoms, and almost invariably the harbinger of a fatal termination. Sir Henry Marsh was the first who directed our attention to the great fatality of those cases of jaundice in which convulsions occur; I have seen but one instance of recovery. It was in the case of a gentleman labouring under icterus, very considerable hepatitis with enlargement of the liver, anasarca, and ascites. He was treated by Dr. Osborne and myself, and had at least a dozen long and violent convulsive paroxysms, ending in coma, succeeded by temporary forgetfulness and fatuity. Repeated leeching of the right hypochondrium, active purgation, and mercurialization of the system removed all the symptoms of disease, and he slowly but perfectly recovered. Dr. Griffin of Limerick has detailed the particulars of some interesting cases of this nature in the *Dublin Medical Journal*. You perceive, therefore, that in jaundice every thing denoting an unusual state of the nervous system, whether it be too much sleep or too little, demands your attention.

In this man's case the jaundice was the result of an attack of hepatitis. We treated it with leeches, blisters, and the use of mercury, and in the course of a few days the stools became copiously tinged with bile, and symptoms of

improving health appeared. At this stage, the dejections being bilious, but the jaundice still remaining, he began to exhibit symptoms of restlessness and irritability, and finally became perfectly sleepless. Here, gentlemen, we had to deal with a new symptom, extremely harassing to the patient, and likely to react unfavourably on the original disease. As a preliminary step, I determined to evacuate the bowels, and for this purpose I prescribed a purgative draught, consisting of five ounces of infusion of senna, half an ounce of sulphate of magnesia, a drachm of tincture of senna, and a scruple of electuary of scammony. My object was to purge briskly, and then give a full narcotic. In all cases of jaundice depending on hepatic derangement, after you have succeeded in producing bilious evacuations, you should never omit prescribing an active aperient every second or third day for the space of ten days or a fortnight, with the view of carrying off the remains of the disease so as to prevent the occurrence of a relapse. Hence you will find such cases very much improved by the use of Cheltenham water, taken every day for three or four weeks *after the reappearance of a bilious tinge in the alvine discharges*. The stimulus of the purgative causes an increased flow of bile into the intestines, which removes the hepatic congestion, and carries off what is popularly termed the dregs of the disease, and promotes a rapid and complete recovery. It is a simple but successful practice, and I would advise you never to omit its employment in cases of this description.

With respect to purgative mixtures, I may observe that you should prescribe a larger quantity of the infusion of senna than is generally ordered, if you wish to secure its certain and decided operation on the intestines. Hospital nurses, who reason from facts and experience, know this, and when directed to give a senna draught they always give a small teacupful. They administer from four to six ounces at a time, and I have observed that in this way the action of the medicine is more certain, and the benefit derived from it more extensive. I am convinced that the usual mode of giving this valuable purgative in private practice is bad; the quantity given is too small, and consequently it is necessary to repeat the dose several times, a mode of proceeding apt to occasion much nausea and griping; I would therefore recommend a quantity varying from three to six ounces to be administered in all cases where the patient's condition will admit of free purging. Mr. Kirby is in the habit of ordering purgative mixtures in chronic cases to be taken at bed-time, and not, as is usually done, in the morning. He asserts that their action is milder and less irritating to the bowels when the patient lies in bed and is asleep until the period of their operation, than if he were up and about.

After the purgative had produced four copious discharges, I prescribed eight minims of black drop, to be taken at a late hour in the evening. Whenever I give opiates to procure sleep, I always observe the rule laid down by Dr. M'Bride (formerly a celebrated physician of this city), to select the period at which nature usually brings on sleep, and which varies according to circumstances and the habits of the patient. Whenever you have to deal with watchfulness in patients labouring under morbid states of the constitution, as, for instance, hectic, inquire when the tendency to sleep usually occurs, and administer your narcotic about an hour or two before its occurrence. It is between three and five o'clock in the morning that the inclination to sleep is strongest; it is about this time that sentinels are most apt to slumber at their posts, and consequently attacks upon camps or cities, made with the intention of effecting a surprise, are usually undertaken about this period of the morning. How well marked is the periodic tendency to sleep at this hour,

in all patients labouring under hectic fever produced by whatever cause ! How often do we hear the poor sufferer complain of restlessly tossing about in his bed until three or four o'clock in the morning, when at last sleep, welcome although uneasy, for a few hours separates the patient from his pains ! If given at an early hour in the evening, the effect of the opiate is not coincident with this periodic attempt of the constitution, and it fails in producing sleep ; but if exhibited at a late hour, it begins to produce its soporific effect at the very time when nature inclines the harassed sufferer to repose, and the result of these combined influences is a deep, tranquil, and refreshing sleep. By observing this simple rule, I have often succeeded in producing sleep in cases where various narcotics had not only failed, but even added considerably to the irritation and discomfort of the patient.

In cases of sleeplessness, where you have administered an opiate with effect, be careful to follow it up for some time, and do not rest satisfied with having given a momentary check to the current of morbid action. To arrest it completely, you must persevere in the same plan of treatment for a few days, until the tendency to sleep at a fixed hour becomes decidedly established. You must give an opiate the next night and the night after, and so on for five or six nights in succession ; and where the watchfulness has been of an obstinate and persistent character, narcotics must be employed for a longer period and in undiminished doses. I do not allude here to the sleeplessness which accompanies confirmed hectic and other incurable diseases ; such cases require a particular mode of treatment, and generally call for all the varied resources of medicine. But in those instances of watchfulness which are frequently observed towards the termination of acute diseases, it is always necessary to repeat the opiate for some time after you have succeeded in giving a check to this symptom. You need not be afraid of giving successive opiates lest the patient should become accustomed to them, and a bad habit be generated, for the rapid convalescence and renewed health which are wonderfully promoted by securing a sound and refreshing sleep, will soon enable him to dispense with the use of opiates.

Another disease in which sleeplessness is a prominent symptom is delirium tremens. We have had an example recently in our wards, and you have seen the means employed to overcome it. The patient came into hospital with symptoms of extreme nervous excitement and watchfulness, which had continued for some time, and were brought on, as is most commonly the case, by repeated fits of intoxication, succeeded by a pause of perfect sobriety—in Irishmen the result of necessity or accident. In this man you must have remarked the signal benefit which attended the use of a combination of tartar emetic and opium, and how rapidly the watchfulness disappeared.

There is, however, one form of nervous irritability, frequently observed in persons who are in the habit of drinking freely, but without running into excess, and presenting, as it were, a shadow of delirium tremens, on which I shall make a few remarks. This curious state of the nervous system is generally found to exist in men about the middle period of life, and who consume a larger quantity of spirituous liquors than they are able to bear. Such persons, without suffering in appearance, or losing flesh, get into a chronic state of disturbed health, manifested by nausea, and even dry retching in the morning, loss of appetite, and impaired digestion ; but in particular by a deranged and irritable state of the nervous system, and by watchfulness. This forms one of the most distressing symptoms, and the patient generally complains that he cannot get any sound and refreshing sleep, that he lies

awake for hours together, and that when he slumbers, his rest is disturbed by disagreeable dreams, or broken by slight noises. How are you to treat this affection? I can give you a valuable remedy for this deranged state of the constitution—one which I have often tried, and which from experience I can strongly recommend. It is a mixture composed of tincture of colomba, quassia, gentian, and bark—say an ounce of each; and to this is added a grain, or even two, of morphia. A compound tincture, somewhat analogous to this, is much in use among military gentlemen and others, who have resided for a considerable time in India, where, from the heat of the climate, and the prevalence of intemperate habits, the stomach becomes relaxed and the nervous system irritable, so as to represent, in a minor degree, the symptoms which characterize delirium tremens. You perceive I combine several tonics to form this mixture, because they are well known to produce a more beneficial effect when combined than when administered singly; and I add to these a narcotic, which has the property of allaying nervous excitement without derangement of the intestinal canal. The dose of this mixture is a teaspoonful three or four times a day, and the best time for taking it is about an hour before meals. It gradually removes the nausea and debility of stomach, lessens nervous irritability and watchfulness, and with a proper and well-regulated diet, and attention to the state of the bowels, I have seen it produce excellent effects. In such persons much benefit is derived from the use of the tepid shower bath.

Fever is another disease in which sleeplessness is a symptom, frequently of an unmanageable character, and pregnant with danger to the patient. You witnessed this in the case of the boy who lies in the small fever ward, next to the man who is at present labouring under general arthritis. This boy had fever of a mild description, and unattended with any bad symptoms. His case scarcely required any attention, and he had almost arrived at a state of convalescence without the aid of medicine, when he began to lose his rest, and absolutely became sleepless for several nights. I beg your attention to this case for many reasons. In the first place, you have seen that we tried many remedies without success, and afterwards fortunately hit on one which answered our purpose completely. Let us examine the nature of the medicines prescribed, and our reasons for giving them.

In the first place we gave, as in the case of jaundice, an aperient followed by a full dose of black drop. It failed in producing any sleep; we repeated it a second and a third time, but without the slightest benefit. I then remarked to the class that, as I had noticed the good effects resulting from a combination of tartar emetic and opium, in the case of delirium tremens, where opium alone failed in procuring sleep, it would be proper to give this remedy a trial. I observed, at the same time, that I was convinced that the preparations of antimony have a distinct narcotic effect, and that I had seen patients in fever whose watchfulness had been removed by antimony given in the form of tartar emetic, or James' powder. I said it was my firm impression that tartar emetic, along with its other effects, exerts a decided narcotic influence on the system, and that it is this which makes it so valuable a remedy in treating the sleeplessness of fever and delirium tremens. Our predecessors were much in the habit of using antimonial mixtures in the treatment of fever; and they did this, because they knew by experience that these remedies worked well. It is at present too much the fashion to decry their practice, and, in this instance, I think with very little justice.

In this boy's case, however, the combination of tartar emetic and opium

did not succeed in producing sleep. Having thus failed in our first and second attempts, we had recourse to the liquor muriatis morphiæ—a preparation first brought into use by Dr. Christison, and now official in the Edinburgh Pharmacopœia. It is equal in strength to laudanum, and is an exceedingly valuable preparation for many reasons, and one which has the strongest claims to your notice. Being of the same strength as laudanum, it saves the trouble of learning and remembering new doses, and, in addition to this, it possesses the more important advantages of inducing sleep with more certainty, and not acting as an astringent on the bowels, or affecting the head so frequently as laudanum. You observe that I say *so frequently*; I do so because cases now and then occur in which even moderate doses of the liquor of the muriate of morphia produce quite as much headache as laudanum. I prescribed the former in doses of fifteen drops every six hours, so as to give sixty drops in the day, and continued this practice for two days, but without the slightest effect. Here you see three modes of inducing sleep completely failed. The boy remained for a day without taking any medicine, and then we made another attempt, which was more successful. We first prescribed a purgative enema, and after this had operated, he was ordered an opiate injection, consisting of four ounces of mucilage of starch and half a drachm of laudanum. He fell asleep shortly after using the opiate injection, and did not awake until the next morning. The following night the opiate was repeated in the same form, and with equal success; convalescence went on rapidly, and the boy's health is now quite re-established.

Here, then, is a singular fact attested by this case, that opiates in the form of injection will succeed in producing sleep, where they have completely failed when administered even in large and repeated doses by the mouth. Baron Dupuytren was the first who made this important observation, and proved that narcotics applied to the mucous surface of the rectum exercise a powerful influence on the nervous system, always equal, and very often superior to the effect produced by taking them into the stomach. He maintains that, in delirium traumaticum and delirium tremens, a certain quantity of opium, when prescribed in the form of enema, will act with more decided effect in allaying nervous excitement, than the same or even a larger quantity, when taken by the mouth. I have no hesitation in giving full credit to this assertion, as the results of my experience tend strongly to confirm its truth.

The two following cases exhibit striking proofs of the utility of this practice, and of its great superiority over the common method.

J. B., aged 30, by profession a surgeon, was admitted into Sir Patrick Dun's Hospital on the 8th of February last, in an extreme state of emaciation and debility, in fact, a complete skeleton, and unable to support himself on his legs. His face was not so haggard or thin as might be expected, considering the extraordinary state of attenuation of his body and extremities, and in this respect, as well as in general appearance, he considerably resembled the *living skeleton* lately exhibited in France and in England. He had not the least fever; his digestive organs appeared quite healthy; his breathing natural; he had no cough; nor did he complain of any pain in the head. To what then was the reduction of flesh and strength owing? Partly to the effects of disease; but chiefly to abuse of those two powerful medicines, mercury and opium.

The history of his case may be given in a few words:—He was formerly much subject to gout and gravel. About three years ago he got a chancre and bubo, which yielded to the use of mercury: six months afterwards, in

consequence of cold, he was attacked with arthritic inflammation of various large and small joints, combined with mercurial periostitis. The arthritis did not yield to the usual remedies, and he was therefore induced at different times again to try mercury. The constant pain and sleeplessness produced by these complaints rendered him unable to pursue his business, and he sank into a state of abject poverty. His constitution became more and more impaired, and a cutaneous eruption, in every respect resembling the milder varieties of *rupia prominens*, made its appearance, while an ulcer commencing inside the left nostril completely destroyed the nasal cartilage, so that the tip of the nose has fallen in. From his account, it would appear that some portion of the spongy bones had been also destroyed; one of the spots of periostitis had evidently produced extensive exfoliation of the *os frontis*, but the part is now healed; he has no sore throat; his gums are sound, and his tongue perfectly clean and moist; he has no thirst, and his appetite is good; bowels quite regular; the few remaining spots of *rupia*, the arthritic swellings and pains now become chronic, extreme debility, and an utter want of sleep, except when under the influence of enormous doses of opium, form the catalogue of his present complaints.

For the last two years he has never had sleep at night, except in consequence of an opiate. He was first induced to take this medicine in order to relieve his pains; but latterly it is not pain, but the impossibility of sleeping except when under its influence, that has forced him to use it constantly. He has often taken two ounces of Battley's solution in the day! Very large doses of opium act on the bowels as an aperient, and the use of this drug never produces headache, furred tongue, thirst, nausea, or the least disturbance of the circulating system. For a few nights after his admission into the hospital, he got two drachms of black drop every night; but it was not enough to procure sleep, and he consequently entreated me to double the dose. But I refused, and ordered the following treatment:—Three drops of Fowler's arsenical solution three times a day; a nutritious but mild diet; some wine at dinner; sarsaparilla broth, one pint daily; a starch enema, with one scruple of black drop, three times a day. The good effects of this treatment became soon apparent; his sleep gradually returned, and in the course of a fortnight was sounder and of longer duration than it had been for years. He daily gathered flesh and strength, and, in the course of a month, was so altered for the better, that were it not for the depressed nose, no one could have recognised him to be the being whose misery a month ago had so strongly excited our commiseration. The arthritic affection has rapidly subsided, and with returning strength he is regaining the use of his limbs.

The following case exhibits the good effects of opiate injections in a manner not less striking than that just detailed. A professional gentleman of great abilities and strength of mind about ten years ago was attacked with neuralgia of a severe description. The disease, which was caused originally by cold, pursued a most anomalous course, giving rise to amaurosis of one eye, ptosis and permanent strabismus of the affected eye; contrary to the expectation of both Sir Astley Cooper and Sir B. Brodie, to whom he was introduced by his friend, the late Dr. Wollaston, the symptoms of cerebral disease made no further progress; but the neuralgic affection of one of his lower extremities became intolerable, occurring in paroxysms of extreme violence, and only to be alleviated by repeated doses of opium. After the lapse of some years, the neuralgia became complicated with pain and swelling of the knee-joint, which still further added to his sufferings, and rendered him a

complete cripple. This joint is now permanently enlarged, and within the last two years the lower extremity of the femur seems to have formed an enormous exostosis of an equal growth all around its circumference, but not encroaching on the articulating surface of the bone, which still enjoys the slightest possible degree of motion, although it cannot be moved far from its flexed position. The neuralgic pains, if such they were, have within the last four years been worse than ever. During the paroxysms he has frequently been forced to take 100 grains of opium, much to his annoyance; for he found that it occasioned subsequent nausea and vomiting, stupor, and other unpleasant symptoms, while the constant repetition of this drug had completely destroyed his appetite, and, what he most deplored, had sensibly impaired his memory and mental powers. At length he was advised to use it in the form of injection. The alleviation produced by this change has been most astonishing: half a drachm of laudanum thus used when necessary, twice or three times a day, effectually alleviates his suffering, and does not produce any of the bad effects before enumerated. His appetite is now good, his spirits cheerful, and his powers of mind unimpaired.

It is unnecessary for me to enter here into any discussion with respect to the nature and treatment of delirium traumaticum, and the sleeplessness which always accompanies it, as you will find this subject very ably treated in M. Dupuytren's works, and in a very instructive and elegant lecture delivered by Sir Philip Crampton in this hospital, and published in the *London Medical and Surgical Journal*. There is, however, one kind of sleeplessness, arising from irritation of the skin produced by blisters, which frequently assumes a very serious character, and on which it may be necessary to offer a few observations, as the subject has not been noticed sufficiently by practical writers. Trifling as the irritation resulting from a blister may seem, under certain circumstances it is a symptom of highly dangerous aspect, and becomes a source of just alarm. I have witnessed the loss of some lives from this cause, and many patients have to my knowledge been rescued from impending danger, by an early and proper share of attention being directed to its phenomena and treatment.

The bad effects on the nervous system, occasionally produced by the application of blisters, are somewhat analogous to those which result from wounds and other external injuries, and to be accounted for on the same principle. Wounds and injuries sometimes make an impression on the nervous system, by no means proportioned to the importance of the injured organ to life, or the extent of the mischief. An injury produced by a body which strikes the sentient extremities of the nerves with great force, will sometimes produce very remarkable effects on the system. Thus, a musket ball striking a limb, may, without wounding any great artery or nerve, or destroying any part of importance to life, produce a train of nervous symptoms of an extraordinary character. The person, without feeling much pain, and scarcely knowing that he has been wounded, without being terrified or having his imagination excited by any apprehended dangers, turns pale, gets a tendency to faint, and sometimes actually dies from an impression made on the nervous system. In the same way an external injury reacting on the nerves may bring on high mental excitement, delirium, and a total privation of sleep, as we see exemplified in delirium traumaticum. I mention this with the view of establishing the proposition, that impressions made on the sentient extremities of the nerves are sometimes reflected on the nervous centres, producing the most alarming effects. In this way we can understand how the irritation of blis-

ters may produce sleeplessness, mental aberration, and a train of symptoms analogous to those which characterize delirium traumaticum.

The delirium and sleeplessness arising from the irritation of blisters is by no means an uncommon disease. I have seen many examples of it in private practice, and I am anxious that you should be acquainted with its nature and treatment. It is generally met with in the case of children, in whom the cutaneous surface is extremely tender and irritable. I could relate several instances in which I have been called on to visit children labouring under fever, where symptoms of high nervous excitement were present, and where I found the little patients delirious, screaming, and perfectly sleepless from this cause. I have found this alarming affection generally occurring at an advanced stage of fever, and exhibiting a train of symptoms which closely resembled hydrocephalus. I have observed that after the application of a blister to relieve some suspected cerebral or abdominal or thoracic affection, jactitation, restlessness, constant application of the hand to the head, and delirium have appeared, and that these symptoms had been mistaken for incipient cerebritis or hydrocephalus, and treated with leeches and purgatives. When the blister has been applied to the nape of the neck, the soreness and irritation of the skin on that part *cause the child to roll its head from side to side on the pillow, with that peculiar motion and scream supposed to prove to a demonstration the existence of hydrocephalus.* I have learned, also, that the above measures, so far from giving relief, have only tended to produce an exacerbation of the disease, and that the medical attendant has given up the case in despair.

Now, gentlemen, if called to such a case, what should be your practice? In four cases of this kind I gave my opinion frankly to the medical attendant, and told him he was pursuing a wrong course, that the disease was analogous to delirium traumaticum, and not to be treated by leeches or purgatives, and least of all by blisters. I observed to him that these symptoms had made their appearance shortly after the child had been blistered for suspected disease of the belly, or head, or chest, and that it was useless to attempt to remove the disease by leeches, or purgatives, or blisters. The remedy I always proposed was opium; and it was acknowledged in four or five cases that this remedy had succeeded not merely in relieving the existing symptoms, but in saving the patient's life. In such cases, particularly in young children, the opium must be given in small but frequently repeated doses, so as to ensure its energetic but safe action; and the greatest care must be taken to soothe the irritated portion of the skin by ointments, poultices, &c., *while unwearied diligence must be bestowed upon the task of preventing the child from scratching the blistered surface.* To effect this, the child's hands must be muffled in appropriate gloves, and must be secured in the sleeves of a shirt made for the purpose.

I beg your attention still further to this subject of sleeplessness and delirium. I wish to mention the case of a gentleman who was a pupil of mine. This gentleman studied hard, attended lectures regularly, and was constantly in the dissecting room. While thus occupied, he happened to wound one of his toes in paring a corn, and afterwards wore a tight shoe on the injured foot. A small, imperfect abscess formed in the situation of the corn, which was opened by one of his fellow students; the incision gave very great pain, and was not followed by any discharge of matter. Next day he was feverish, and the lymphatics of the injured limb became extensively engaged, the inflammation ascending towards the glands of the groin, and having a tendency to

form a chain of insulated patches in different parts of the leg and thigh, along the course of the lymphatics. This you will generally find to be the case in inflammatory affections of the lymphatics; the inflammation is seldom continuous, but, in the majority of cases, is developed at certain insulated points, where small diffuse suppurations form very rapidly. After a few days this young gentleman's fever increased to an alarming height; he became completely sleepless, and had incessant delirium. He was purged briskly, leeches extensively and repeatedly, his head shaved, and cold applications so constantly applied that he appeared half drowned and collapsed. Notwithstanding this very active treatment, not the slightest relief was obtained; neither were the symptoms mitigated by incisions made in the inflamed patches for the purpose of evacuating matter; the sleeplessness continued, and the delirium was as wild as ever.

I saw him on the seventh or eighth day, when all antiphlogistic measures had failed, and his friends were quite in despair. On being asked my opinion, I stated that I looked upon the case as one of delirium, not proceeding from any determination to the head or inflammation of the brain, but depending on causes analogous to those which produce delirium traumaticum, and that instead of antiphlogistics I would recommend a large dose of opium and some porter to be immediately given. Mr. Cusack, who visited the patient after me, concurred in this view, and a full opiate was administered in repeated doses. It succeeded in producing sleep, and tranquillising the nervous excitement. I may here observe, that a few days afterwards this gentleman had a return of the symptoms of cerebral disturbance, with sleeplessness, in consequence of omitting his opiate, and that the opiate and porter were again administered, and again succeeded in removing the delirium and watchfulness. By perseverance in the use of the same means, the disease was completely removed, and convalescence established.

There is another kind of sleeplessness frequently met with in persons of a nervous and irritable disposition, in hypochondriacs and hysterical females. You will find such persons, although of active habits and with tolerable appetites, complaining of a total privation of their natural rest, and it is astonishing to think how long they may continue subject to this harassing watchfulness. I have frequently observed this affection among females of nervous habit, who possessed strong feelings of attachment to the interest and welfare of their families, and who were remarkable for an exemplary and over-anxious discharge of their domestic duties. It is also very often met with in the upper classes of life, where the susceptibility to nervous excitement is morbidly increased by fashionable habits.

I shall not enter into the various moral causes which tend to produce this state of the nervous system, and will content myself for the present with giving you some hints for the treatment of this obscure affection. As yet I have not any distinct and accurate notions of the disease, and can only guess at the treatment; but this I may state, that such cases are not to be cured by the means which I have already detailed. If they are to be cured by any means, I think it is by anti-spasmodics, and remedies which have a gentle stimulant, and, if I may so express myself, alterative effect on the nervous system. I have cured two cases of this kind by musk and asafoetida, where every other remedy had failed. To one of these I was called by Dr. Neason Adams. The patient was a lady of delicate constitution and hysterical habit; she was emaciated, and suffered from a total loss of rest, but had no other disease. All kinds of narcotics had been tried unsuccessfully, and opium, in

all its forms, had failed in procuring sleep. I advised the use of musk in doses of a grain every second hour, and this means proved eminently successful. In another case I succeeded by administering the same remedy in combination with asafetida. I have also remarked that asafetida alone, given in doses of two or three grains three times a day, has very considerable effect in calming nervous irritation of this description, and restoring the patient to the enjoyment of more prolonged and refreshing sleep. In all such cases the physician must be most careful to have the appearance of not thinking the loss of sleep as a matter of much consequence, and the family of the patient must be directed to speak as little about the matter in his presence as possible; nay, so powerful is the operation of moral impressions, that in one case, which I attended with Mr. Halahan, I succeeded in procuring sleep by ordering a musk pill to be given every second hour, night and day, and by desiring the patient to be awakened, should she be asleep, at the time the pill was to be taken. I laid great stress on the importance of so proceeding, and thereby produced so strong an effect on the patient's mind, and inspired so great a confidence in the efficacy of the medicine, that she went to bed, not so much afraid of lying awake as afraid of being asleep at the hours when she ought to take a pill. The idea which had hitherto fixedly occupied her mind was displaced by a new impression, and relief was obtained the very first night.

In affections of the head, occurring in acute diseases and attended with raving and sleeplessness, it is a very usual practice to direct the application of cold lotions to the shaved scalp.

Permit me, gentlemen, to make a few remarks on this important subject. I wish I could make myself well understood on this point, for I have seldom met with any person who seemed to bear in mind the true principle upon which cold is applied as a means of repressing local heat. In cases of determination of blood to the head occurring in fever, the common practice is to have the head shaved and cold lotions applied. Enter the room of a patient who is using cold applications, and you will observe the process conducted with great apparent nicety; the head is accurately shaved, and carefully covered with folds of linen wet with a lotion, to which spirit of rosemary or some odoriferous tincture has communicated an agreeable and refreshing smell; but when you come to examine the patient, you will find his head smoking, and the heat of his scalp increased. The nurse applies the lotion once every half hour, or perhaps not so often; indeed she seldom repeats the application until her notice is attracted by the steam rising from the patient's head, or until she herself, awakening from a comfortable sleep, and going over to examine the state of the patient's head, finds the folds of linen which cover it as hot and as dry as if they had been hung before a fire. Whether applied to reduce local inflammation in any part of the body, or to cool the scalp in determination to the head, cold lotions, as ordinarily employed, do infinitely more harm than good. The cold is applied at distant intervals, its effect soon ceases, and reaction constantly takes place, leaving the part as hot or even hotter than it was before.

If you put your hand into snow for a few moments, and then take it out, it quickly resumes its natural heat; and if you repeat this at considerable intervals, so as to give time for reaction to occur, the vessels assume a more energetic action, and it becomes hot and burning. If you continue to keep it in the snow for a long time, its heat becomes completely exhausted, reaction does not take place until after a considerable period, and very slowly, and the hand remains at a very low temperature for a good while. Bear this

in mind, for it will direct you in the application of cold to reduce local heat. If cold applications be used at such intervals as to allow the scalp to react and resume its heat, rely upon it, it is much better to forbid them altogether. Where you wish to apply cold with effect, let it be done by relays of folded linen, wet with any frigorific mixture, and repeatedly applied to the scalp, so as to permit no smoking, or, what is much better, get three or four bladders, put into each a quantity of pounded ice, and apply one over the crown of the head, one on each side, and lay one on the pillow for the back of the head to rest on.

There is a vast difference between a thing being done and its being well done : so it is with regard to cold lotions ; so difficult is it to insure their proper application, that I have entirely given them up in hospital practice, and rarely order them in private. I have been induced to abandon them in consequence of witnessing so many instances in which my directions were neglected, and consequently the cerebral congestion was augmented by their mal-application. Another serious inconvenience frequently arises from their use when applied in a slovenly manner, which is, the danger of cold, arising from the pillow and bed-clothes being wetted.

It is a curious fact, that the head is the only one of the three cavities with respect to which long-established custom has laid down the maxim, that when its contents are inflamed, we may cool the surface over it ; while in inflammatory affections of the thoracic or abdominal viscera, this practice is avoided as dangerous and inapplicable. Latterly, however, some medical men have been inclined to question the grounds on which cold applications have been rejected in the two latter cases, and some have even declared that they have used ice poultices in inflammation of the chest and belly with great success and perfect safety. I am not as yet prepared to adopt this practice, although I must confess that a review of the subject might incline me to give up my prejudices on this point. It is certainly reasonable to think that what is true of the one may be also true of the other, and that the application of cold to the head, and heat to the chest and belly, has nothing in its favour beyond mere custom. It should be recollected, however, that the head and face are more accustomed to cold than the chest and belly, and hence are less liable to any mischief likely to arise from its application in an intense degree. Still I am inclined to think that there is much prejudice connected with the practice of applying cold to the head, and I have very little doubt that if the matter were properly investigated, and a number of experiments made, it would lead to the abandonment of cold applications in most inflammatory diseases of the brain. In fevers, as I have remarked in a previous lecture, they are, in the majority of cases, certainly injurious *as usually applied* ; sponging the bare scalp with tepid or warm vinegar and water, or *even frequently-repeated stuping of the head and temples*, will often succeed much better in abating the headache and restlessness of fever than any cold applications whatsoever. In 1832, a violent influenza, accompanied by most distressing headache, attacked thousands in Dublin ; this intense pain in the head was relieved by nothing so effectually as by diligent stuping of the temples, forehead, occiput, and nape of the neck *with water as hot as could be borne*.

I do not speak here of the application of cold to the head for the purpose of relieving local heat and inflammation, but to produce an effect on the whole system. Cold thus applied is of decided and unequivocal value. You are aware that in cases of fever accompanied by symptoms of high mental excitement and great heat of skin, the use of cold dashing has produced the most extraordinary effects. Again, if a patient has taken too large a dose of prussic

acid or any other narcotic, the best mode of rousing him is by pouring water on his face or chest from a height. In Turkey, if a person happens to fall asleep in the neighbourhood of a poppy field, and the wind blows over it towards him, he becomes gradually narcotized, and would die, if the country people, who are well acquainted with this circumstance, did not bring him to the next well or stream, and empty pitcher after pitcher on his face and body. This occurred to my friend Dr. Oppenheim, during his residence in Turkey, and he owes his life to this simple but effectual treatment.

I have already spoken of the extraordinary effects produced in some cases by the administration of narcotics in the form of enema; I have seen excellent results also from their external application. The following is a good example:—In June, 1831, a lady consulted me for a very severe headache, which came on at uncertain periods, and then continued one or even several days, during which time the agony was occasionally intense. She often passed sleepless nights; but although necessarily exhausted by so much suffering, her general health is tolerable, and during the intervals between the paroxysms she is active and in good spirits. Usually the pain comes on at a certain hour in the evening, continues during the night, and diminishes about the same hour in the forenoon; but at times the pain continues for several days, without any appreciable intermission. As she is of a bilious habit, I attempted the cure in the first instance by emetics, followed by purgatives, and finally by tonics, without producing the least benefit. Carbonate of iron, sulphate of quina, and arsenic, were successively tried in vain.

At last, being sent for to see her in one of the violent paroxysms, I directed the scalp to be well stuped, and a narcotic plaster to be afterwards applied. I should have mentioned that the hair had been frequently shaved, for the purpose of trying tepid shower baths, and that she had never complained of tenderness in any part of the head, or even the feeling of external soreness, the sensation of pain being constantly referred to an internal headache. These circumstances were very unpromising, so far as regarded the probability of her receiving relief from the external application of narcotics; and to tell the truth, when I ordered the plaster, I myself did not expect much advantage from its use; and yet, strange to say, this method proved most effectual, as the pain immediately disappeared, and did not return for seven weeks.

She wore the plaster for a month, and when the pain returned, a second plaster again banished it. The following is the formula for this plaster:—Powdered opium, two scruples; camphor, half a drachm; Burgundy pitch and litharge plaster, of each sufficient to make a plaster.

The quantity of narcotic ingredients given in this formula is sufficient for the largest sized plaster, for smaller, they must be proportionably diminished; such plasters are of great service in rheumatic and neuralgic pains of the chest, back, and loins, and occasionally they prove useful in sciatica; in the advanced stages of phthisis much suffering is frequently produced by stitches, soreness, and pains in the sides and chest; in such cases I always direct the part to be well stuped, and then rubbed with warm laudanum; this will very often procure immediate relief, but if it does not, we must apply a few leeches, and favour the flow of blood by the application of a cupping glass. Occasionally a very small venesection is necessary, and the application of a small blister to the painful part. Those who have not been engaged in practice will perhaps expect directions to enable them to distinguish which of these modes of treatment is suited to any particular pain. The pain of *pleurodynia*, they will say, is to be treated in one way, and that of pleurisy in another: now in the advanced stages of phthisis it so happens that the pleuritic affection occupies

so small a space in most cases, that it cannot *a priori* be detected by the usual means of percussion and auscultation, and consequently we must try the remedies I have mentioned, in succession ; indeed I have seen landanum and anodyne plaster succeed, where others believed that severe applications would have been necessary. In *crick of the neck*, diligent friction with laudanum affords immediate relief. The external application of narcotics might also prove serviceable in chronic sleeplessness, where their internal administration had failed. Another method of employing narcotics which I have found very useful, is, by means of flannels wrung out of the hot infusion of the remedy we wish to employ ; the effect is increased by covering them with oil silk.

Sleeplessness, gentlemen, as I have before remarked, is often and very correctly looked upon as indicative of the approach of insanity, but I have seen many cases in which the attack was ushered in by deep sleep. One case that I attended some years ago in Lower Mount-street, with Dr. Stokes, was peculiarly illustrative of this. Two young gentlemen, college students, went to bed in perfect health the night previous to their examination ; they slept soundly all night ; the elder rose early in the morning and left his younger brother in bed still asleep ; he remained so for two hours more, having slept altogether for more than ten hours, when he awoke in a state of complete insanity, from which he did not recover for some months.

A form of chronic sleeplessness is not unfrequently met with, where individuals suffer from almost total want of rest for months together, without any loss of flesh or any visible impairment of their constitution. Such cases get well of themselves, after a longer or shorter period, and do not require any medical treatment. You should, therefore, not be too busy in prescribing narcotics, as they seem rather to aggravate this state of the nervous system. One gentleman of my acquaintance suffered for many years from this inability to sleep, without the least injury to his health. He was in the habit of getting on horseback in the middle of the night, and riding violently for several hours together, but he could not procure the least sleep even after this violent exercise. In his nocturnal equitations (in which he rivalled Charles the Twelfth, who, it is narrated, rode from Damotica, in Turkey, to the Baltic port of Stralsund, having been on horseback night and day for five weeks) he was frequently stopped by the police, until they became at length accustomed to his habits.

To conclude, I may observe that sleeplessness in a chronic form is often produced by dyspepsia, and can only be relieved by means suited to indigestion. Here it is that small doses of blue pill and tonic purgatives are of infinite service, combined with change of air and scene, and an appropriate diet. In many females, sleeplessness is combined with menstrual irregularity, and can only be cured by means calculated to invigorate the health and restore the catamenial discharge to its natural periods and quantity, for the nervous system suffers equally whether they be suppressed or over abundant. It is singular how long sleeplessness often continues in chlorosis, without inducing those serious consequences that are produced by this symptom in other morbid states of the system. In such cases much is sometimes accomplished by means of the common preparations of morphia, or by the use of Hoffman's liquor, camphor, and other medicines that act upon the nervous system. It must be confessed, however, that these, as well as every other expedient to obtain sleep, often fail in chlorotic and hysterical females, in whom relief is only obtained by a gradual improvement of the general health and menstrual function.

LECTURE LXX.

THE MODE OF ADMINISTRATION AND EFFECTS OF VARIOUS
MEDICINES.—CONCLUSION.

I PURPOSE in the present lecture to lay before you the results of my experience of the action of certain medicines, and also to offer you some practical observations on their administration. And, first, with regard to the best method of administering calomel in acute inflammation.

Although the antiphlogistic effects of calomel are well known, and every day witnesses examples of inflammations cured by its exhibition, still practitioners are not agreed as to the doses in which this powerful remedy ought generally to be given. The following remarks, derived from very extensive opportunities of observation, apply not to the treatment of chronic diseases, not to that of inflammations, either slight in degree or occupying parts not essential to life, but to those violent attacks of inflammatory action which so often prove fatal, in the course of a few days or even hours, by destroying the texture and functions of vital organs.

If a person is seized, for example, with very acute pericarditis, how unavailing will be our best directed efforts unless they be seconded by a speedy mercurialization of the system? In proof of this assertion, I might adduce a considerable number of cases of pericarditis, treated both in hospital and private practice, and might triumphantly compare the results with those obtained in the continental hospitals, as recorded by some of the most eminent German and French physicians. When even the most violent attacks of pericarditis are met with copious venesection, repeated leeching, and the rapid ingestion of calomel, few patients will be lost. If, on the contrary, the practitioner rely solely on the lancet, if in the beginning, as I have seen done, he applies a blister over the heart, and if he defer the exhibition of calomel, *or use it insufficiently*, then will he have occasion to regret the consequences, and witness either the speedy death of his patient, or his condemnation to the sufferings entailed on him by adhesions, valvular disease, and the other sequelæ of badly treated pericarditis.

What has been said of pericarditis applies equally to the *more acute and violent forms* of peritonitis, hepatitis, pneumonia, pleuritis, and dysentery. The latter disease rarely occurs with such violence in this country as to require the method of mercurial treatment so successfully practised in the East and West Indies, and which is precisely the mode of treatment I now venture to recommend in the above mentioned diseases, whenever their attack is very violent, and they threaten an immediate destruction of life. In any acute and sudden iritis, when vision is speedily endangered, the same treatment is applicable.

The mode of exhibiting calomel referred to is well known to all those who have practised in tropical climates, and has been most clearly explained, and

its advantages placed in the true light, by Dr. Johnson, in his classical work on the Diseases of Tropical Climates. He proves by numerous examples, that when an inflammation threatens the destruction of a vital organ, then, in addition to the lancet, and other antiphlogistic remedies, we ought to affect the constitution decidedly and as speedily as possible, by means of calomel, given not in small doses often repeated, but in doses of a scruple, once or even twice daily. These larger doses, he observes, are much less apt to be rejected by the stomach, much less likely to gripe or produce troublesome purging, than small and frequently repeated doses. In this assertion of a fact so curious and so difficult to explain, he is borne out by the testimony of every writer who has practised in the East or West Indies.

The opponents of this practice here have frequently observed that such doses of calomel may, it is true, be given with advantage in hot climates, and may be well suited to the constitutions of persons inhabiting tropical countries, but we cannot thence infer that they may be exhibited either with safety or benefit to Europeans in their native climate. This observation, no doubt, deserves attention, but its weight must fall to the ground if experience, contrary to the general received opinion, shows that with proper precautions calomel may be given in as large doses here as in the East Indies. I am particularly anxious not to be misunderstood, and should be very sorry to see myself ranked among those who have recourse to mercury on every occasion, and who may be said to abuse, not to use calomel in their practice. Mercury in even the mildest form should not be given except the nature of the disease imperatively calls for its use, and in those cases only where no other remedy will effect the same purpose. Calomel in large doses, or even in small, I scarcely ever order except life is in danger, or an important organ (as the eye in *iritis*) threatened with destruction.

In chronic complaints, in dyspepsia, constipation, &c., the prudent physician will scarcely ever order mercury in any shape; for, as I have mentioned to you in a previous lecture, the blue pill system of Abernethy and others has been productive of infinite mischief. Many army surgeons, on their return from the East, have continued to use scruple doses of calomel in acute diseases; but their example has not generally been followed, and I am pretty certain that in Dublin I was the first who, both in hospital and in private practice, had recourse to such doses. When life is in danger, and we have determined on this method of treatment, the following precautions are to be observed:—The patient must take no cold fluids. Whatever he drinks must be moderately warm; barley water without lemon juice should be preferred; and he should not consume more than three pints of drink in the twenty-four hours, as too much drink disturbs the stomach and bowels, and favours mercurial diarrhoea. Grapes and all fruit must be withheld—a precaution too often entirely neglected, much to the patient's injury: for I have seen a tympanitic state of the abdomen induced by fruit, particularly grapes. In the South of France, in Italy, and in Spain, grapes form a most useful article of diet in inflammatory and feverish complaints; but they are there generally of a better quality than those we here commonly meet with in the sick room; and, besides, they form a common article of diet during health. Be the reason of the difference what it may, I can assert from experience, that in this city the physician will act wisely in forbidding grapes altogether in fevers, and still more in all diseases where he thinks it right to give mercury internally.

When we wish a scruple of calomel to be taken at once, an excellent method is to place the powder on the tongue, and make the patient wash it down with

some thin gruel, or else it may be given in the form of a bolus. In most cases one such dose daily is sufficient ; but it now and then happens, that very imminent danger will prompt us to give a second dose after the lapse of twelve hours. By this management we are often enabled to mercurialize the system fully in a very short space of time indeed, and we thereby not only cut short a dangerous inflammation, and save our patient's life, but we often effect this purpose without exciting any considerable griping pains or bowel complaint. Such accidents will of course occasionally happen, no matter how mercury is introduced into the system, no matter whether administered in the form of inunction or internally ; but I can safely appeal to those amongst you who have witnessed my treatment of the pneumonia and pleurisy epidemic last winter and spring, for confirmation of the assertion, that the curative effects of this mode of giving calomel were most striking, while the occurrence of griping or bowel complaint was comparatively rare, a circumstance partly owing also to the care taken to prevent such patients from being exposed to cold.

Another point well worthy of attention remains to be considered. In general it is supposed, that at the time mercury is about to affect the mouth, it produces a degree of constitutional fever, acceleration of the pulse, &c. Now I can assert with confidence, that when fever produced by inflammation, such as pericarditis, pleurisy, &c. has existed before the calomel was exhibited, the latter will in nine cases out of ten produce, at the moment the mouth becomes affected, a marked abatement of fever, a marked diminution of the frequency of the pulse. When, as will happen in some cases, particularly such as have been neglected at their commencement, this diminution of fever, this retardation of pulse does not accompany the mercurialization of the system, let not the practitioner deceive himself ; it is a bad sign ; it is still worse if the pulse become accelerated and the fever increased : in such cases the disease is rarely arrested in its progress. This observation may seem unnecessary, but I know it is important ; for I myself have been deceived, and I have seen others of far greater experience deceived at such a crisis, into the belief that the increase of fever and the acceleration of the pulse were owing to the mercury, and not to an aggravation of the disease.

Another most important question is, whether mercury so used for the cure of internal inflammations injures the constitution permanently ? With the greatest confidence I can answer, it does not. I never saw a single bad effect follow the use of mercury, in cases where the first consequence of its exhibition was the rapid and complete removal of a dangerous inflammation : a remedy can scarcely serve and hurt the constitution at the same time. Mercury when it abates inflammation never irritates the system ; and if it be discontinued when it has performed this important office, its after effects will be employed in the same way, in curing the remnant of the inflammatory action. In this I entirely agree with Mr. O'Beirne, who has most successfully combated the generally received dogma, that mercurialization of the system cannot be employed in the treatment of acute inflammations in scrofulous habits. Whatever cuts short the inflammation, provided it be applied in due proportion, cannot injure the constitution.

Now, in chronic diseases, I have found that the very opposite method of administering calomel and other preparations of mercury is attended with most advantage ; for, when given in *continuous small doses*, its beneficial influence is best obtained. This rule applies especially to those obstinate cases of secondary syphilitic affections we sometimes meet with, which last for years in spite

of all treatment. In a case of this description which I lately attended, periostitis, nodes, venereal eruptions, &c. succeeded each other for more than two years, notwithstanding the use of all the usual remedies as ordinarily administered ; a perfect cure was established in less than three months by the administration of *one grain* of blue pill daily. In a case of epilepsy, also, which I attended, I gave one grain of calomel nightly for two years ; it did not produce salivation or any other manifest constitutional effects, yet at the end of that time the fits were completely stopped.

Respecting the local application of mercury, I have one remark to make. You do not forget the man in the upper ward, who had periostitis affecting the scalp. This disease was very obscure in its symptoms, and was accompanied by severe pain and irritation, so as to deprive him entirely of rest. It was hard to make out what it was ; we however ascertained its nature, and decided that salivation would cure it, and this was the case : the man got considerably better as soon as we had made his mouth sore, but still some pain remained. What did I do ? I ordered mercurial ointment to be diligently rubbed to the seat of the pain ; the very night it was done the man got relief. I cannot explain this ; but it appears to be a proof that the opinion of the older physicians on the utility of mercury locally applied is well grounded. You know it has been lately shown that one of the best applications we can make to a swelled testicle is mercurial ointment. In a case of violent peritonitis, where we had leeches, blistered, and salivated, you have seen me order a mercurial dressing to the whole of the blistered surface, and you remember I stated that I expected much advantage from it. When, therefore, you have cured a disease by mercury, and there happens to be a partial recurrence of its symptoms, you will hold this treatment in memory, and have recourse to it.

I shall next speak of the effects of tartar emetic in certain chronic diseases. In persons of a weakly habit, and in those who have passed the meridian of life, it sometimes happens that the symptoms of an acute disease, *particularly bronchitis*, subside, leaving the patient, however, in an extremely debilitated state, free from fever, but entirely destitute of appetite.

In such cases, day after day passes away without any increase of strength, while nothing is complained of but weakness and total want of appetite. The skin is cool, the pulse indicates no remnant of fever, respiration is free, the abdomen soft and natural, and the alvine discharges exhibit nothing to account for the remarkable want of digestive energy on the part of the stomach.

In this state of the patient, the most constant and peculiar symptom is the appearance of the tongue, which is always moist, and has its whole upper surface covered with a remarkably thick, white, smooth, and tenacious paste. Nausea is seldom complained of, neither is inconvenience experienced from thirst or bitter taste in the mouth, but whatever food is taken appears nearly tasteless and insipid, and the tongue and mouth feel clammy and uncomfortable.

This state has been long noticed by physicians, and various remedies proposed for its removal. The most obvious mode of proceeding is the exhibition of purgatives, followed in due time by tonics ; and when this method is pursued with judgment, it will prove successful. Tonics in the first instance, and while the tongue is in the state above described are always injurious. Two cases which occurred in the hospital excited much interest, on account of the previous obstinacy of the disease, and the rapid improvement which attended the adoption of means believed by most of the students more likely

to injure than to serve the patients. The following was the method of treatment employed, and I have found it in several other cases of a similar nature very effectual in restoring appetite and promoting convalescence.

The patient is put on low diet, consisting of white bread and whey ; milk is altogether interdicted, as it invariably appears to aggravate the symptoms. During the day the patient takes every hour a tablespoonful of a solution of one grain of tartar emetic in twelve ounces of water ; if it nauseate the stomach, the dose is to be diminished. This plan is persevered in for two days, and an emollient enema is administered in the evening if necessary. On the third day the same plan is continued until dinner time, when the patient gets meat and vegetables, and is encouraged to make as hearty a meal as possible. In an hour after this an emetic, consisting of twenty grains of ipecacuanha and one grain of tartar emetic, is exhibited, and vomiting promoted by copious draughts of tepid water ; during the two following days the low diet and minute doses of tartar emetic must be resumed, and on the third day again the full dinner and emetic.

During this course the tongue gradually becomes clean, the desire for food increases, and the general health and strength improve rapidly, when the patient is allowed a more nourishing diet, which, however, must be done with great caution and judgment.

It is an old opinion that tartar emetic in minute doses possesses a peculiar efficacy in softening and detaching the viscid mucus which in these cases loads the surface of the tongue and stomach, and impedes the healthy discharge of the digestive function. Whether the physiological reasoning of our predecessors on this subject are admissible in the present state of science, I shall not stop to examine, my object being now limited to a statement of the fact as practically useful. I was induced to give the emetic after a full dinner on the third day, partly in consequence of some observations of Hippocrates, and partly because it seemed very probably *a priori*, that an emetic on a full stomach would not only cause less distress during its action, but would also prove more effectual, the vomiting being induced at the moment the stomach is engaged with the greatest activity in carrying on the process of digestion, when it is most copiously supplied with blood, and pours forth its peculiar secretion in greatest abundance. Be this as it may, the above plan of giving emetics after dinner, previously exhibiting minute doses of tartar emetic, has seemed to me more useful in many chronic diseases than the usual method of exhibiting them. I can particularly recommend it in cases of obstinate headache, depending on a deranged state of the stomach.

Having mentioned the use of cod liver oil in the strumous diathesis, I avail myself of this opportunity of corroborating the testimony of those (and, amongst the rest, of Dr. Bennett) who have extolled the use of this medicine in strumous diseases in general. I have seen it do what I never saw any other remedy effect, *i.e.*, reduce to the natural size amygdalæ that were enlarged from the period of extreme youth. A most remarkable instance was that of a young lady, aged about 19, whose amygdalæ were as large as small wallnuts, and which I treated without effect for two years, both by iodine internally, and nitrate of silver locally. A three months' course of cod liver oil left no trace of the disease behind. Under the influence of this oil the enlargement of the cervical glands in young persons of a scrofulous habit frequently disappears, and the tendency to the formation of phthisis, and the recurrence of strumous

hemoptysis is occasionally overcome. In persons of a consumptive tendency, I consider this as a valuable addition to our remedies.

I have recently used aconite with great benefit both internally and externally in the treatment of painful gouty, rheumatic and neuralgic affections. The preparation I have used is the tincture, of which I give five minims three times daily. In one case, that of a physician from the country, who had been suffering for months from an exceedingly painful rheumatic affection of the vertebræ of the neck, which prevented the least motion without the greatest torture, a rapid and perfect cure was effected by this medicine. And in another case, in which there was gouty neuralgia of the whole cuticular surface, including even the scalp, it produced equally beneficial effects.

Dr. Mulock has communicated to me two cases illustrative of its action as a local application:—"Miss H——, while nailing a curtain to the top of a bedstead, fell on her knees on the feather-bed, and when attempting to rise could not, although there was no appearance of injury; and on the best surgical advice being procured, no injury of any kind could be discovered. The pain and irritability of the part were so great, that she was obliged to put a basket over the joint when in bed to keep off the pressure of the bed-clothes; and even rubbing it gently brought on a fit of hysteria. After the use of many remedies without benefit, a lotion composed of one ounce of tincture of aconite, and seven ounces of rose water, gave decided relief." The second case was one in which a lady strained her knee-joint by slipping on the stairs; the aconite lotion gave effectual relief here also.

The next subject I shall call your attention to is *dry cupping*.

Dry cupping is a remedy not by any means of modern invention; it was known to Hippocrates and Aretæus; and, in succeeding times, among the nations of the European continent and in the British dominions, it was very generally employed, and formerly enjoyed the reputation of being a very fashionable remedy. Of late it has fallen very much into disrepute; it is now very seldom employed, though some persons still use it in hospitals and public institutions, where clinical experiments are conducted on an extensive scale. Mr. Robertson has attempted to revive this practice, and has proved that dry cupping is a very valuable remedy, possessed of curative powers shared by no other therapeutic agent, and capable of being applied with advantage where the ordinary means are perilous or inadmissible.

Some time ago, Mr. King of Stephen's Green related to me the particulars of a case which exhibited in a very remarkable manner the benefit derived from dry cupping. It was a case of hysterical vomiting in a lady, for which every known remedy has been tried without any favourable result, and which was completely arrested by the application of dry cupping to the stomach and margins of the ribs. This may appear strange to you, and you may be inclined to ask how is it that a change in the condition of the integuments of the abdomen can affect the stomach? In reply to this I would ask, in inflammation of the stomach, whether acute or chronic, why is it that the application of leeches to the integuments relieves the gastric affection? In the latter the result is equally as strange as in the former instance; the circulation of the stomach is totally distinct from that of the integuments, and yet we have no remedy so efficient in relieving gastric inflammation as leeches applied to the integuments of the epigastrium. Taking away blood from the surface produces a change in the circulation of the internal organs; detaining blood

in the integuments, in the neighbourhood of any viscus, acts also on the internal circulation, and effects a corresponding change. Let us investigate this more minutely.

A cupping-glass is applied to some part of the body, and the air contained within it is exhausted by means of a syringe or by heat. In either case the integuments of the part are forced up into the glass by atmospheric pressure, so as to form a hillock, in which a considerable quantity of blood is detained, remaining in the capillaries of the part, and being, as it were, cut off from the general mass of the circulation. The experiments of Dr. Barry have proved the detention of blood in that portion of the integuments submitted to the action of the cupping-glass, and that the quantity so detained does not pass into the general circulation, or partake in its changes. Now, if a given portion of the skin has, in consequence of morbid action, an unusual quantity of blood thrown into it, and cupping-glasses are applied to the integuments in its vicinity, you draw off a great quantity of blood into the portion which you cup, and that part which presented an unusual quantity, in consequence of morbid engorgement, may be, *pro tempore*, drained, and may, during the period of this application, make rapid progress towards health. The same observation holds good when you cup over an internal organ in a state of inflammation. You must be aware of the practice of tying arteries which go to tumours of various kinds, and that the application of the ligature has frequently proved successful in arresting the peculiar inflammatory process by which such morbid developments are accompanied. Now, cupping acts as a kind of temporary ligature on the vessels of the part to which the glass is applied, including even the capillaries; and it is in this way that it tends to prevent the absorption of poisons locally applied.

Having said so much about the application of cupping-glasses, their *modus operandi*, and their action as local applications, let us see how far the principle may be pushed, and also whether this mode may not be applicable to local affections alone, but also act on the general circulation in such a manner as to produce those effects which are commonly attained by different means. Dr. Arnott, in vol. i., p. 574, of his work on the "Elements of Physies," makes the following important observations on this subject:—"Reflection upon these circumstances led me to think that, in certain cases, the beneficial effects of blood-letting might be attainable by the simple means of extensive dry-cupping; that is to say, by diminishing the atmospherical pressure on a considerable part of the body, on the principle of the cupping-glass used very gently, and thus suddenly removing for a time, from about the heart, a quantity of blood sufficient, by its absence, to produce faintness. The results of trial have been such as to give great interest to the inquiry, and the author's leisure will be devoted to the prosecution of it. An air-tight case of copper or tin plate, being put upon a limb, and made air-tight by a leathern or other suitable collar, tied at the same time round its mouth and the limb—on part of the air being then extracted by a suitable syringe, in an instant the vessels all over become gently distended with blood; and, as the blood is suddenly taken from the centre of the body, faintness is produced, just as by bleeding from a vein. The excess of blood may be detained in the limb as long as desired, for the circulation is not impeded. To produce a powerful effect with a slight diminution of pressure, more than one limb must be operated on at the same time." From this it appears, that if you take the whole arm or leg or thigh of a man, and place it under this machine, then exhaust it of air, and detain one or two pounds of blood in the integu-

ments, the same quantity is abstracted from the heart and general circulation, and the effect produced is the same as if you had suddenly drawn blood from the system to this amount. The strongest man will faint if you cup both legs. I think this view of the subject opens new ground in the field of practical medicine. You are all aware of the effects, the truly beneficial and admirable effects of blood-letting, and you know also that these depend not so much on the quantity of blood lost, as on the impression produced on the general system. If we have to deal with an extensive and violent inflammation, we do not abstract blood by a minute opening; we make a large orifice, or we open a vein in both arms at the same time, we place the patient in an erect posture, and endeavour to produce deliquium. It sometimes happens that the patient faints from fear, or before any considerable quantity of blood has been lost, and this faintness, as Dr. Arnott remarks, answers as well as that which results from venesection. This I can also testify, for I have seen all the good effects of bleeding produced by the terror with which the operation frequently inspires persons of delicate or nervous temperaments.

Now, by the machinery before described, a machinery by no means complicated, you are able to produce with certainty such a powerful effect on the general vascular system, as to obtain all the benefit derivable from general blood-letting. Dr. Arnott mentions another but more objectionable way of attaining the same purpose, and one which is inferior in efficacy to the mode detailed. If you apply a bandage pretty tightly over the upper part of a limb, suppose, for instance, round the thighs, so as to prevent the return of blood through the veins, and then put the legs into warm water, the quantity of blood detained in the lower extremities will be such as to make the patient faint. This mode may be useful on some occasions, but it is inferior to dry-cupping, and can only be applied to the extremities. There is another and very important point relative to the employment of dry-cupping which stamps additional value on it, from its applicability to cases calculated to excite much solicitude and anxiety in the mind of every practitioner. You have often seen cases of inflammation in which our sole hope of safety, or even life, depends on checking the inflammatory process, when we stand doubting or perplexed, balancing the possibly fatal effect of blood-letting on a sinking frame, with the slower, but, perhaps, more certainly calculated close of an inflammation which attacks some vital organ, and affects the very sources of existence. If, in such circumstances, we could produce results similar to those which accompany venesection, would it not be a very important desideratum? Now, the employment of dry-cupping holds out to us a fair prospect of attaining this end, of cutting short a menacing inflammation in that particular state of constitution where blood-letting is a perilous experiment, and regulating the errors of morbid action without having recourse to the customary shock of sanguineous depletion. I do not know any better or more valuable auxiliary in the practice of medicine than this, or one which is capable of greater extension and improvement. There is not a single practitioner who does not remember how often he has been forced to bleed, when he knew that he was doing so at the risk of his patient's constitution and life; there is no one who has not, on such occasions, anxiously sought some other means of accomplishing the same purpose; and, as this is promised by the employment of dry-cupping, I think this matter should become the subject of extensive clinical experiment, and that no time should be lost in proceeding to investigate the true properties of a remedy which is likely to open a new era in medical practice. Cupping-glasses might be made of con-

venient shapes for applying them along the inside or the outside of the thigh or arm, and might be so large that, with the aid of a syringe, the intended effect could be produced in a few minutes. With regard to their operation in cases of local diseases, I think we cannot extend their use too far. There are many cases of hysterical neuralgia, sometimes affecting the side, sometimes the spine, and other parts, which hitherto we have treated by bleeding, leeches, stupes, liniments, and blisters. Fomentations and liniments sometimes succeed in removing this affection, so do leeches, but frequently both fail, and we are obliged to blister, which often produces great irritation without being attended by any decided benefit. Here it is very probable that we would derive very great advantage from dry-cupping in the neighbourhood of the affected part. I have in a previous lecture referred to its effects in the head-aches of young ladies. Now these are varied and numerous beyond conception, generally connected with some menstrual irregularity and derangement of the intestinal canal, and forming a class of disorders which would require a good monograph more than any other I know of. Many practitioners get into disgrace with ladies on this account, and, as a natural consequence, with the community in general. Bleeding here is of very little use, and gives only a temporary relief, or even in many cases aggravates the existing symptoms. The best plan of treatment is to regulate the menstrual secretion, and attend to the state of the bowels. But I will say no more on this subject, for I might lecture on it without end. As to the head-ache, if you leech, they get worse afterwards; if you apply cold lotions, the same result follows; the best thing that you can do, in my opinion, is to apply dry cupping glasses to the back of the neck and between the shoulders.

Let us see what dry-cupping has done in those cases which have been treated with it in hospital. A man of the name of Ryan, who has been a long time in hospital, suffering from violent pains, produced partly by rheumatism and partly by neuralgia, complained of very severe attacks of pain in the lumbar region, lower part of their belly and thighs, particularly in the lumbar region, on one side of which the pain and tenderness were excessive. This man had been mercurialized and blistered; he had 100 leeches to the affected parts in eight different applications; he had been stuped repeatedly; he had all manner of liniments and internal remedies I could devise. He was certainly somewhat improved by this treatment, but not so much as I wished. Well, this man has received the most marked benefit and relief of his sufferings from dry-cupping over the seat of the disease.

Another man, named Eustace, who had sciatica, which was cured by acupuncture, and afterwards returned, experienced considerable advantage from this remedy. In the case of a woman above in the fever ward, labouring under bronchitis, we have observed an amelioration of the pectoral symptoms after the application of dry-cupping. It appears to me that cases of pain and tenderness are not the only ones to which dry-cupping is applicable, but that we may employ it also with hopes of success in congestion of internal organs. Cupping over the chest, I think, would diminish if not cut short the paroxysms of spasmodic asthma, of tussis senilis, and of the acute suffocative catarrh. In bronchitis with emphysema it would relieve the congestions of the lungs, and lessen the dyspnoea; and in the violent suffocating bronchitis of children, soon after birth, it seems to be particularly valuable from its rapid effects. In the tremendous and fatal dyspnoea which accompanies this affection in children, bleeding and leeches are objectionable, from the dangers attendant on them, and from their tedious operation, and are decidedly inferior to the

prompt and efficacious agency of dry-cupping, which is free from any danger. You will be convinced that I do not overrate the value and advantages of dry-cupping, when you recollect the case of a man in the hospital who has empyema of the left side of the chest. In this case, the whole of the cavity of the left pleura is filled with matter, the heart has been pushed to the right side, and the man breathes only through the right lung. Now this man got bronchitis in his only sound lung, and you can easily perceive what danger he was in. It is obvious, that in such cases, from the long duration of the disease, the immense quantity of pus in the pleural sac, and the weakness of the patient's constitution, bleeding could not be employed without much hazard. We had recourse to small doses of tartar emetic and extensive dry-cupping over the chest. The result of this case, which I could not have treated so advantageously a fortnight ago, is very encouraging, for you have seen the relief this poor man obtained. It may seem to you that I am disposed to think too highly of this remedy; but as I have stated to you before, its properties seem to be analogous to those of general and local bleeding, and it is of the utmost importance to investigate its effects thoroughly, and see if it is capable of the same application and likely to be attended with similar results; or, if there be any difference in applicability, to know where the one and where the other may be employed with the greatest propriety and success.

In an early part of the course, when speaking of the prescriptions in fever, I mentioned the mode of administering carbonate of ammonia in effervescence.

We had a woman in fever here some time ago, to whom we gave the carbonate of ammonia in a state of effervescence; and as the form in which we administered it proves extremely useful, I think it necessary to remind you of it. The carbonate of ammonia is given in excess, in the proportion of about two grains and a half in each draught, as you will perceive by the formula employed:—

R. Aquæ Fontis, f̄vss.
Syrupi Zingiberis, f̄iij.
Carbonatis Ammoniae, 5j. Signetur, No. 1.

The syrup of ginger is used to cover the taste produced by the excess of ammonia, and to prolong the effervescence. Everything syrupy prevents the too rapid escape of the carbonic acid. If the acid and alkaline solutions consist of water alone, there is an instant extrication of carbonic acid, and it escapes, as it were, in a very rapid succession of bubbles; the patient scarcely has raised the vessel to his lips, when the effervescence is over. The syrup thickens the water, and thus offers a resistance to the extrication of the fixed air, and moreover gives the mixture a more agreeable flavour. You next proceed to prescribe the acid solution, as follows:—

R. Acidi Citrici, 5j.
Aquæ Fontis, f̄iij. Signetur No. 2.

and then you add,

Sumantur cochlearia duo ampla ex No. 1. effervescentiâ cum cochleare uno amplo ex No. 2.

You perceive, gentlemen, that I am not so poetical as Dr. Paris, who, with a phraseology almost Homeric, says, *Sumatur in impetu ipso effervescentie*.*

Where effervescing draughts are indicated in the latter stages of protracted nervous fevers, and when it is, at the same time, necessary to administer moderate doses of diffusible stimuli, their combination will be found very beneficial.

I have said that the carbonate of ammonia in these draughts is in excess, for one drachm of this salt would require about seventy-eight grains of tartaric or citric acid to form a neutral compound. When, therefore, you wish to order effervescing draughts, without any notable excess either of acid or alkali, you may prescribe one drachm of carbonate of ammonia in No. 1, and eighty grains of acid in No. 2. These quantities will be sufficient to make six effervescing draughts. If the disease is more of an inflammatory nature, carbonate or bicarbonate of soda should be preferred. Three drachms of the crystallized carbonate of soda will be required in No. 1 to make six draughts, to be taken in effervescence with 100 grains of acid in No. 2. When the bicarbonate is used, the quantity of alkali and acid ought to be ʒij . and 140 grains respectively. Let us, therefore, for the sake of impressing on the memory, place in a tabular form these relative quantities :—

Alkaline solution, six ounces.

Carbonate of Ammonia, ʒj .

Carbonate of Soda, ʒij .

Bicarbonate of Soda, ʒij .

Acid solution, three ounces.

Tartaric or citric acid, 80 grains.

Ditto 100 grains.

Ditto 140 grains.

These proportions of acids and alkalis form effervescing draughts, in which the acid is *quam proximè*, exactly sufficient to decompose the carbonated alkali. In general practice, the same alkaline solutions are ordered to be taken with a table-spoonful of lemon-juice to two of the solution. This is evidently a very incorrect method; for if this quantity of lemon-juice is reckoned equivalent to seventeen grains of citric or tartaric acids, then it is obvious that six table-spoonfuls are equivalent to 102 grains of acid. This quantity of lemon-juice, therefore, is, *quam proximè*, sufficient when carbonate of soda is used, but it is too much when carbonate of ammonia, and it is too little when bicarbonate of soda is used. In common cases, this slight excess of either acid or alkali is of no importance, but it not unfrequently happens in fever and inflammatory diseases, that urgent thirst or nausea require the frequent administration of effervescing draughts, while, at the same time, the internal exhibition of calomel, blue pill, or James' powder is indicated. When this occurs, it is of great consequence that the acid used in the draughts should not be in excess, as it might occasion griping and diarrhœa, and consequently, in such cases, I prescribe the acid solution instead of lemon-juice, as its strength is known, and may be regulated with certainty.

A word on sinapisms, and I have done. This species of rubefacient is applied in various diseases, viz, in the latter stages of fever, in pleurodynia, colic, pains of the stomach, and not unfrequently in suppressed or irregular gout, where it is attempted to fix the disease in the extremities. Nothing is more certain than that gout may go astray, and that it may occasionally be called away from important internal parts, by means calculated to excite inflamma-

* “ So spake the guardian of the Trojan state,
Then rush'd impetuous through the Iææan gate :
Him Paris followed.”—*Pope's Iliad*.

tion on the surface. If a man, in whom a fit of gout was about to take place, sprains his ankle, inflammation of the part is forthwith the consequence, and here the gout at once settles. Within a short period of time I have seen three remarkable examples of the relief which vital organs may experience when gout appears in the extremities. A publican applied to me with violent pain in his stomach, which came on every evening, and lasted many hours in spite of every remedy. In a day or two he got a violent attack of podagra, and had no more internal suffering. A gentleman, whom I attended with Mr. Barker, was attacked with cerebral symptoms and indistinctness of vision and utterance. We feared hemiplegia; the next day he got severe podagra, and was able to speak perfectly well, and see distinctly. He was 75 years of age. At the same time I was attending, with Mr. Colles and Mr. Haffield, a robust and powerfully made gentleman, aged 74, who having had symptoms of flying gout, and shortly after a bowel complaint, made use of the salt-water plunge bath. This imprudent act brought on a violent and nearly fatal hemoptysis. He was bled twice, and got the usual styptics with relief, but his improvement became much more rapid when gout appeared in both his feet.

Facts such as these occur frequently, and leave a strong impression on the mind of the practitioner of the prudence of attempting to bring the gout to the extremities in similar cases. Some try to do this by means of stuping, liniments, blisters, or sinapisms; but it appears to me that the latter are seldom applied in a manner likely to affect the desired object, for when composed of the usual ingredients, sinapisms act too quickly to be long borne, and of course only give rise to a very superficial inflammation, and that of very brief duration. To fix gout in a part, for example, in the foot, our application must act much more gradually, and must excite the deeper seated tissues. These objects may be obtained by mixing one part of strong and fresh-ground mustard powder with three of flour, and adding as much treacle as will convert them into a viscid paste, which may be spread like a plaster on linen, and applied to the part. This will be borne for four or six hours, and will cause a redness which will last a whole day. The proportion of flour may vary according to circumstances.

I have done now, the session is over, and I must conclude. It was usual in my time to spend five or ten minutes at the termination of a closing lecture in flattering the class and indulging in a complimentary strain. I do not mean to do this. I cannot say that you have been idle; but, gentlemen, we cannot be too industrious. Never was there a time when the career of science was so brilliant and so rapid as the present: there never was a time when the inducements were so great to explore, investigate, and treasure up the numerous and deeply interesting mass of facts for which science is indebted to modern discovery. The day is gone by when quackery could impose upon the credulous, and impudence assume the garb of merit; a century ago it was very easy to keep up with the scanty and slow-paced intelligence of the age; men became acquainted with certain opinions which they regarded as fixed and immutable, and here their pursuit of science was abandoned. In our times the field of science is so broad and extensive, and its increase on every side so rapid and so various, that he who wishes not to be left completely behind must employ all his energies with continuous and unremitting assiduity.

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